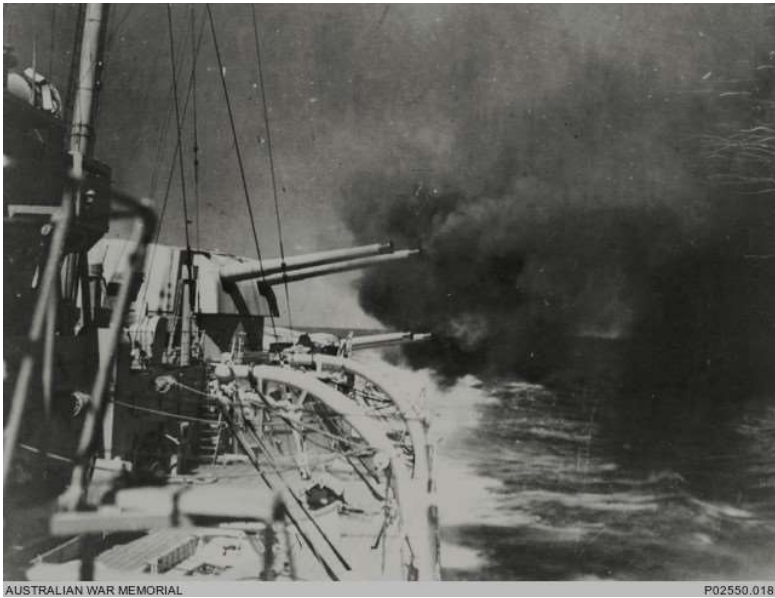


NAVAL SIMULATIONS (NAVSIM) 1939-45

DATA SET

CHARACTERISTICS OF WWII SHIPS, AIRCRAFT & WEAPONS



THE WAR AT SEA 1939-1945

April 2024

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NATIONAL SHIP CHARACTERISTICS

Name and year of commissioning (build & launch dates earlier).

Damage Points – represents size and strength of vessel. Typical small warship std tonnage x 1.5.

STF (Ship Target Factor) - full length targets / bow or stern (end-on) target.

TR (Torpedo Rating)

Speed in knots – maximum sustained speeds.

Armour – A1/A2/A3/A4/A5. A1 is for the belt. A2 for the deck. A3 for the main turrets. A4 for the secondary guns and A5 for the vitals (including conning tower). Armour and penetration values are in inches rounded up. No armour is written as a dash ‘-’.

Armament - The calibre (in inches) and type of guns onboard the ship, 3-inch or over. Smaller guns are typically used for anti-aircraft fire or against patrol craft or targets ashore.

AAFF (Anti-Aircraft Fire Factor) - A factor representing a ship's AA fire including small AA guns, as well as larger calibre AA & DP guns.

Other Characteristics - include torpedo tubes, aircraft (carried, launching and recovery), radars, mines, sonars/ASDIC, depth charges, launchers & throwers, as well as special capabilities (supplies, repair, fuel).

BRITISH SHIP CHARACTERISTICS

BATTLESHIPS, BATTLECRUISERS & MONITORS:

Royal Sovereign Class

- BB - *Royal Sovereign* (1916): 40,700pts STF 31/20 TR E 22kn 13/4/13/6/11 AAFF 64
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 16x40mm (2pdr AA), 8xHMG. From 1941 various radars.
AA Upgrades: (1941) 10x20mmAA, (remove HMG). AAFF 66. (1942) now 24x40mm (2pdr), AAFF 82,
(1943) now 36x20mmAA. AAFF 108, (1944) 8x4-inch, 24x40mm, 42x20mm. AAFF 114
- BB - *Revenge* (1916): 39,476pts STF 31/20 TR E 22kn 13/4/13/6/11 AAFF 64
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 16x40mm (2pdr AA), 8xHMG. From 1941 various radars.
AA Upgrades: (1941) 24x40mm (2pdr), 10x20mmAA, (remove HMG). AAFF 82.
- BB - *Resolution* (1916): 40,556pts STF 31/20 TR E 22kn 13/4/13/6/11 AAFF 64
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 16x40mm (2pdr AA), 8xHMG. 1 a/c, 1 catapult (rem'd 1942)
From 1941 various radars. AA Upgrades: (1941) 9x20mmAA, (remove HMG). AAFF 65,
(1942) 24x40mm (2pdr), 10x20mm. AAFF 82, (no change 1945) 24x40mm, 10x20mm, AAFF 82
- BB - *Royal Oak* (1916): 41,256pts STF 31/20 TR E 22kn 13/8/13/6/11 AAFF 64
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 16x40mm (2pdr AA), 8xHMG. [Sunk Oct 1939]
- BB - *Ramillies* (1917): 41,250pts STF 31/20 TR E 22kn 13/4/13/6/11 AAFF 64
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 16x40mm (2pdr AA), 8xHMG. From 1941 various radars.
AA Upgrades: (1941) 24x40mm (2pdr), 10x20mmAA, (remove HMG). AAFF 82,
(1943) 20x20mm. AAFF 92, (1945) 23x20mm. AAFF 95

Queen Elizabeth Class

- BB - *Queen Elizabeth* (1914/41): 42,685pts STF 32/21 TR F 24kn 13/5/13/2/13 AAFF 140
8x15-inch/42, 20x4.5-inch/45 DP, 32x40mm (2pdr AA), 16xHMG. From 1941 various radars. 3 a/c, 1 catapult
AA Upgrades: (1941) 16x20mmAA, (remove HMG). AAFF 140, (1944) 54x20mm. AAFF 178
- BB - *Valiant* (1916/39): 44,089pts STF 32/21 TR F 24kn 13/5/13/2/13 AAFF 140
8x15-inch/42, 20x4.5-inch/45 DP, 32x40mm (2pdr AA), 16xHMG. (1941) various radars. 2 a/c, 1 catapult
AA Upgrades: (1941) 16x20mmAA, (remove HMG). AAFF 140, (1944) 47x20mm. AAFF 171
- BB - *Warspite* (1915/37): 43,028pts STF 32/21 TR F 23kn 13/6/13/2/13 AAFF 104
8x15-inch/42, 8x4-inch/45 DP XII, 32x40mm (2pdr AA), 16xHMG. (1941) various radars. 4 a/c, 1 catapult
AA Upgrades: (1941) 16x20mmAA, (remove HMG). AAFF 104, (1944) 35x20mm. AAFF 123
- BB - *Barham* (1915/34): 42,450pts STF 32/21 TR F 23kn 13/5/13/2/13 AAFF 72
8x15-inch/42, 8x4-inch/45 DP XII, 16x40mm (2pdr AA), 16xHMG. (1941) various radars. 1 a/c, 1 catapult
AA Upgrade: (1941) 18x40mm (2pdr AA). AAFF 76 [Sunk Nov 1941]
- BB - *Malaya* (1916/36): 42,565pts STF 32/21 TR F 23kn 13/5/13/2/13 AAFF 72
8x15-inch/42, 8x4-inch/45 DP XII, 16x40mm (2pdr AA), 16xHMG. (1941) various radars. 1 a/c, 1 catapult
AA Upgrades: (1941) 15x20mmAA, (remove HMG). AAFF 71, (1942) 12x4-inch/45, 18x40mm, 31x20mm,
AAFF 103, (1944) 12x4-inch/45, 18x40mm, 45x20mm. AAFF 117

Nelson Class

- BB - *Nelson* (1927): 46,960pts STF 35/23 TR F 23kn 14/7/16/2/14 AAFF 54
9x16-inch/45, 12x6-inch/50, 6x4.7-inch/40(AA), 48x40mm (2pdr), 2x24.5"TT (TT removed 1941-42).
Early Radars / Late Radars. AA Upgrade (1943) 4x20AA Rockets, AAFF 94 2 a/c, 1 catapult (rem'd 1943)
- BB - *Rodney* (1927): 47,440pts STF 35/23 TR F 23kn 14/7/16/2/14 AAFF 54
9x16-inch/45, 12x6-inch/50, 6x4.7-inch/40(AA), 48x40mm (2pdr), 2x24.5"TT (TT blanked off 1943-44).
Early Radars / Late Radars. AA Upgrade (1943) 4x20AA Rockets, AAFF 94 2 a/c, 1 catapult (rem'd 1943)

King George V Class

- BB - *King George V* (1940): 54,980pts STF 37/24 TR G 28kn 15/6/13/2/13 AAFF 152
10x14-inch/45, 16x5.25-inch/50 DP, 32x40mm (2pdr), 4x20AA Rockets. (1941) Radars. 4 a/c, 1 catapult
AA Upgrades (1941) 44x40mm, 18x20mm, (remove AA Rockets), AAFF 154,
(1944) 10x14-inch/45, 16x5.25-inch/50 DP, 64x40mm (2pdr), 8x40mm(Bofors), 38x20mmAA. AAFF 230
- BB - *Prince of Wales* (1941): 57,269pts STF 37/24 TR G 28kn 15/6/13/2/13 AAFF 144
10x14-inch/45, 16x5.25-inch/50 DP, 32x40mm (2pdr), 1x40mm (Bofors), 3x20AA Rockets. 4 a/c, 1 catapult
(1941) Radars installed. AA Upgrades (mid-1941) 48x40mm (2pdr), (remove AA Rockets), AAFF 146
- BB - *Duke of York* (1941): 55,531pts STF 37/24 TR G 28kn 15/6/13/2/13 AAFF 150
10x14-inch/45, 16x5.25-inch/50 DP, 48x40mm (2pdr), 6x20mmAA. (1941) Radars. 4 a/c, 1 catapult
AA Upgrades (1942) 14x20mm, AAFF 158, (1944) 34x20mm, AAFF 178,
(1945) 10x14-inch/45, 16x5.25-inch/50 DP, 88x40mm (2pdr), 8x40mm(Bofors), 61x20mmAA. AAFF 301

BB - *Anson* (1942): 55,820pts STF 37/24 TR G 29kn 15/6/13/2/13 AAFF 128
10x14-inch/45, 16x5.25-inch/50 DP, 32x40mm (2pdr), 18x20mmAA. (1942) Radars. 2 a/c, 1 catapult
AA Upgrades (mid-1943) 40x20mm, AAFF 150,
(1945) 10x14-inch/45, 16x5.25-inch/50 DP, 64x40mm (2pdr), 8x40mm(Bofors), 69x20mmAA. AAFF 261

BB - *Howe* (1942): 52,550pts STF 37/24 TR G 28kn 15/6/13/2/13 AAFF 162
10x14-inch/45, 16x5.25-inch/50 DP, 48x40mm (2pdr), 18x20mmAA. (1942) Radars. 4 a/c, 1
catapult
AA Upgrades (mid-1944) 40x20mm, AAFF 184,
(1945) 10x14-inch/45, 16x5.25-inch/50 DP, 64x40mm (2pdr), 8x40mm(Bofors), 42x20mmAA. AAFF 234

Repulse Class

BCr - *Repulse* (1916): 44,100pts STF 40/26 TR E 30kn 6/5/9/2/10 AAFF 124
6x15-inch/42, 20x4.5-inch/45 DP, 24x40mm (2pdr AA), 8x20mmAA, 8xHMG 4 a/c, 1 catapult, [sunk]

BCr - *Renown* (1916): 44,100pts STF 40/26 TR E 30kn 6/5/9/2/10 AAFF 124
6x15-inch/42, 20x4.5-inch/45 DP, 24x40mm (2pdr AA), 16xHMG. Various radars. 4 a/c, 1 catapult
AA Upgrades: (1942) 16x20mmAA, (remove HMG). AAFF 124, (1943) 28x40mm, 64x20mm. AAFF 180

Admiral Class

BCr - *Hood* (1920): 55,290pts STF 40/26 TR F 31kn 12/3/15/2/12 AAFF 156
8x15-inch/42, 14x4.5-inch/45 DP, 24x40mm (2pdr AA), 16xHMG, 5x20AA Rockets, 4x21TT (surface mtd)
(1941) Early radars (Type 284 gunnery, Type 279 AAW)

Monitors

Erebus (1916): 14,860pts STF 20/13 TR B 12kn 5/4/13/2/6 AAFF 54
2x15-inch/42, 6x4-inch/45 DP, 16xHMG, 2x20AA Rockets UP.

Terror (1916): 14,860pts STF 20/13 TR B 12kn 5/4/13/2/6 AAFF 09
2x15-inch/42, 3x3-inch AA.

Roberts (1941): 14,693pts STF 18/12 TR B 12kn 5/4/13/2/3 AAFF 64
2x15-inch/42, 8x4-inch/45 DP, 16x40mm (2pdr AA), 8x20mmAA.

Abercrombie (1943): 15,256pts STF 18/12 TR B 12kn 5/4/13/2/3 AAFF 76
2x15-inch/42, 8x4-inch/45 DP, 16x40mm (2pdr AA), 20x20mmAA.

AIRCRAFT CARRIERS (FLEET, LIGHT, ESCORT, SEAPLANE):

Early Fleet Aircraft Carriers [ship damage-gunnery/AAF/hex move FT max. a/c launch(norm/basic) ready a/c type]

CV - *Argus* (1918): 15,108pts STF 31/20 TR D 20kn No Armour AAFF 20
6x4-inch (2xLA, 4xHA), 4x47mm (3pdr AA). 1 hangar, 1 lift, 1 catapult, 15 a/c normal, (18 a/c max)
AA Upgrade: (1940) 12xHMG, AAFF 32, (1942) 13x20mm AA, (remove HMG) AAFF 33
Air Ops 15 9/3 6 CV [4-0/1/1 Flat Top 5 3/1 2 CV]

CV - *Eagle* (1924): 23,502pts STF 37/24 TR D 24kn 5/1-2/-/- AAFF 47
9x6-inch/50 VII, 5x4-inch/45 V HA, 16x40mm (2pdr AA). 1 hangar, 2 lifts, 22 a/c normal, (30 a/c max)
AA upgrade: (1942) 12x20mmAA, AAFF 59. [sunk 11 Aug 1942]
Air Ops 22 14/8 12 CV [6-2/2/1 Flat Top 8 5/3 4 CV]

CV - *Hermes* (1924): 13,602pts STF 33/22 TR D 25kn 3/0-1/-/- AAFF 15
6x5.5-inch/50 Mk I, 3x4-inch/45 V HA, 6xHMG. 1 hangar, 2 lifts, 12 a/c normal, (20 a/c max)
Air Ops 12 10/5 8 CV [sunk 9 Apr 1942] [4-1/1/1 Flat Top 5 4/2 3 CV]

CV - *Furious* (1917/25): 23,763pts STF 43/28 TR D 30kn 3/0-1/-/- AAFF 152
12x4-inch/45 V HA, 56x40mm (2pdr AA), 4xHMG. 2 hangar decks, 2 lifts, 30 a/c normal, (36 a/c max)
AA upgrade: (1942) 22x20mmAA, (remove HMG), AAFF 170.
Air Ops 30 12/6 12 CV [5-1/2/2 Flat Top 12 4/2 4 CV]

CV - *Glorious* (1917/30): 24,169pts STF 43/28 TR D 30kn 3/0-1/-/- AAFF 64
12x4-inch/45 VIII HA, 12x40mm (2pdr AA), 4xHMG. 2 hangars, 2 lifts, 2 cat. 40 a/c normal, (48 a/c max)
Air Ops 40 12/6 9 CV [8 Jun 1940] [5-1/2/2 Flat Top 16 4/2 3 CV]

CV - *Courageous* (1916/28): 23,400pts STF 43/28 TR D 30kn 3/0-1/-/- AAFF 100
16x4-inch/45 VIII HA, 24x40mm (2pdr AA), 4xHMG. 2 hangar, 2 lifts, 2 cat. 40 a/c normal, (48 a/c max)
Air Ops 40 12/6 9 CV [sunk 17 Sep 1939] [5-1/2/2 Flat Top 16 4/2 3 CV]

CV - *Ark Royal* (1938): 24,585pts STF 44/29 TR E 31kn 5/0-4/-/- AAFF 176
16x4.5-inch/45 DP, 48x40mm (2pdr AA), 32xHMG. 2 hangars, 3 lifts, 2 cat. 54 a/c normal, (60 a/c max)
Air Ops 54 30/10 18 CV [sunk 13 Nov 1941] [7-1/4/2 Flat Top 19 10/3 6 CV]

Illustrious Class

CV - *Illustrious* (1940): 24,354pts STF 41/27 TR E 30kn 5/0-3/-/- AAFF 176
16x4.5-inch/45 DP, 48x40mm (2pdr AA), 16x20mmAA, 16xHMG. 36 a/c normal, (54 a/c max)
1 hangar, 2 lifts, 1 catapult. Air Ops 36 30/9 18 CV [7-1/5/2 Flat Top 12 10/3 6 CV]

CV - *Victorious* (1941): 24,247pts STF 41/27 TR E 30kn 4/0-3/-/- AAFF 231
16x4.5-inch/45 DP, 48x40mm (2pdr AA), 21x40mm (Bofors), 45x20mmAA. 36 a/c normal, (54 a/c max)
1 hanger, 2 lifts, 1 catapult. Air Ops 36 30/9 18 CV [7-1/5/2 Flat Top 12 10/3 6 CV]

CV - *Formidable* (1940): 24,354pts STF 41/27 TR E 30kn 5/0-3/-/- AAFF 176
16x4.5-inch/45 DP, 48x40mm (2pdr AA), 16x20mmAA, 16xHMG. 36 a/c normal, (54 a/c max)
1 hanger, 2 lifts, 1 catapult. Air Ops 36 30/9 18 CV [7-1/5/2 Flat Top 12 10/3 6 CV]

CV - *Indomitable* (1941): 25,450pts STF 41/27 TR E 30kn 5/0-3/-/- AAFF 176
16x4.5-inch/45 DP, 48x40mm (2pdr AA), 10x20mmAA, 16xHMG. 48 a/c normal, (56 a/c max)
2 hangers, 2 lifts, 1 catapult. Air Ops 48 30/9 21 CV [7-1/5/2 Flat Top 16 10/3 7 CV]

(1943-45 Fleet Carriers – also AA Upgrades for 1943-45)

Early Escort Carriers

CVE - *Audacity* (1939/Jun 1941): 10,712pts STF 26/17 TR A 14kn No Armour AAFF 12
1x4-inch/45 V DP, 1x57mm (6pdr QF), 4x40mm (2pdr AA), 4x20mmAA. 6 a/c normal, (8 a/c max),
Flight deck only. No hangar deck, no lift. [sunk 21 Dec 1941]
Air Ops 6 6/3 3 CV [1-0/1/1 Flat Top 2 2/1 1 CV]

CVE - *Activity* (May 1941): 13,220pts STF 28/18 TR A 18kn No Armour AAFF 26
2x4-inch/45 V DP, 20x20mmAA. Small hanger aft, 1 lift. 10 a/c normal, (15 a/c max),
(commercial build) Air Ops 10 6/3 3 CV [1-0/1/1 Flat Top 3 2/1 1 CV]

Archer Class

CVE - *Archer* (Nov 1941): 11,802pts STF 27/18 TR B 17kn No Armour AAFF 28
3x4-inch/45 V DP, 19x20mmAA. 1 lift, 1 catapult, 15 a/c normal, (20 a/c max)
Possible to transport up to 90 a/c in hold & deck. (Long Island class design).
Air Ops 15 10/3 6 CV [1-0/1/1 Flat Top 5 3/1 2 CV]

CVE - *Avenger* (Mar 1942): 9,160pts STF 27/18 TR B 17kn No Armour AAFF 24
3x4-inch/45 XVI DP, 15x20mmAA. 1 lift, 1 catapult, 15 a/c normal, (20 a/c max)
(Long Island class design). [sunk 15 Nov 1942]
Air Ops 15 10/3 6 CV [1-0/1/1 Flat Top 5 3/1 2 CV]

Others – *Biter*, (Apr 1942), *Dasher* (July 1942), & *Tracker* (Jan 1943).
Catapult Aircraft Merchant ships (27 Empire ships & 8 requisitioned merchants)

CAM - *MV Empire Faith* (1941): 7078pts STF 23/15 TR A 11kn AAFF 10
1x4-inch HA, 1x3-inch AA, 4xHMG. (Glasgow, Ministry of War Transport) 1 Sea Hurricane, 1 catapult.

CAM - *MV Primrose Hill* (1941): 7628pts STF 23/15 TR A 11kn AAFF 10
1x4-inch HA, 1x3-inch AA, 4xHMG. (Glasgow, Putney Hill Steamship Co.) 1 Sea Hurricane, 1 catapult.

Seaplane Carrier

AV - *Albatross* (1929): 10,260pts STF 24/16 TR B 21kn No Armour AAFF 28
4x4.7-inch/40 VIII DP, 16x40mm (2pdr AA). 20 mins to launch, 1 catapult. 6 a/c normal, (9 a/c max)
(built to Adm Stds) Air Ops 6 3/3 3 SP [3-1/1/1 Flat Top 2 1/1 1 SP]

HEAVY CRUISERS

Hawkins class (3 off)

CA - *Hawkins* (1919/Mod. 1940): 16,590pts STF 26/17 TR C 29kn 3/2/1/1/3 AAFF 20
7x7.5-inch/45 VI, 4x4-inch/45 V, 4x40mm (2pdr AA).
Upgrades: (1941) 10x40mm, 7x20mmAA, AAFF 43. Radar added. (1944) 18x40mm, 9x20mmAA, AAFF57.

CA - *Frobisher* (1920/Mod. 1942): 16,590pts STF 26/17 TR C 29kn 3/2/1/1/3 AAFF 54
5x7.5-inch/45 VI, 5x4-inch/45 XIX, 16x40mm (2pdr AA), 7x20mmAA. Radars, ASDIC and DC
Upgrades: (laid-up 1939 until Mar 1942) above arms. (1944) 19x20mmAA, AAFF66.

CA - *Effingham* (1921/Mod. 1939): 16,620pts STF 26/17 TR C 29kn 3/2/2/2/3 AAFF 52
9x6-inch/45 XII, 8x4-inch/45 XIX, 8x40mm (2pdr AA), 12xHMG.

Kent class (1928, 7 off)

CA - *Kent* (1928, Mod 1936-39): 18,030pts STF 28/18 TR D 31kn 5/4/2/2/3 AAFF 48
8x8-inch/50 VIII, 8x4-inch/45 V, 8x40mm (2pdr AA), 8xHMG. DCTs & DCR. 2 a/c, 1 catapult, no hangar.
Upgrades: (1941) 6x20mmAA, AAFF 54. Radar added. (1942) a/c & 8xHMG removed, 12x20mm. AAFF 52.

CA - *Berwick* (1928, Mod 1936-39): 18,030pts STF 28/18 TR D 31kn 5/4/2/2/3 AAFF 64
8x8-inch/50 VIII, 8x4-inch/45 V, 8x40mm (2pdr AA), 8xHMG. DCS. 2 a/c, 1 catapult, hangar & full stern.
Upgrades: (1941) 5x20mmAA, AAFF 69. Radar added. (1942) a/c & 8xHMG removed, 11x20mm. AAFF 67.
(1944) 18x20mm. AAFF 74.

CA - *Cornwall* (1928, Mod 1936-39): 18,030pts STF 28/18 TR D 31kn 5/4/2/2/3 AAFF 64
8x8-inch/50 VIII, 8x4-inch/45 V, 16x40mm (2pdr AA), 8xHMG. DCS. 2 a/c, 1 catapult, hangar & full stern.

CA - *Cumberland* (1928, Mod 1936-39): 18,030pts STF 28/18 TR D 31kn 5/4/2/2/3 AAFF 48
8x8-inch/50 VIII, 8x4-inch/45 V, 8x40mm (2pdr AA), 8xHMG. DCS. 2 a/c, 1 catapult, hangar & cut stern.
Upgrades: (1941) 5x20mmAA, AAFF 53. Radar added. (1943) 8xHMG removed, 14x20mm. AAFF 54.

CA - *Suffolk* (1928, Mod 1936-39): 18,030pts STF 28/18 TR D 31kn 5/4/2/3 AAFF 48
8x8-inch/50 VIII, 8x4-inch/45 V, 8x40mm (2pdr AA), 8xHMG. DCS. 2 a/c, 1 catapult, hangar & cut stern.
Upgrades: (1941) 10x4-inch, 4x20mmAA, AAFF 58. Radar added. (1942) 8xHMG rem'd, 8x20mm. AAFF 54.

CA - *Australia* (1928, Mod 1938-39): 17,830pts STF 28/18 TR D 31kn 5/4/2/3 AAFF 40
8x8-inch/50 VIII, 8x4-inch/45 V, 4x40mm (2pdr AA), 8xHMG, 8x21-inch TT. 1 a/c, 1 catapult, hangar.
Upgrades: (1941) Radar added. (1943) a/c & 8xHMG removed, 7x20mm. AAFF 39. (1944) 14x20mm, AAFF 46. (1945) 6x8-inch, 8x4-inch, 8x40mm (2pdr), 8x40mm (Bofors), 14x20mm, AAFF 70.
Served as HMAS *Australia* (1928-54).

CA - *Canberra* (1928): 17,750pts STF 28/18 TR D 31kn 1/3/2/2/3 AAFF 28
8x8-inch/50 VIII, 4x4-inch/45 V, 4x40mm (2pdr AA), 8xHMG. 8x21-inch TT. 1 a/c, 1 catapult, hangar.
Upgrades: (1941) 8x8-inch, 4x4-inch, 8x40mm (2pdr), 5x20mmAA, Radar (Type 271) added. AAFF 33.
Served as HMAS *Canberra* (1928-42).

London class (1929, 4 off) only two of which were modified 1941 & 1943.

CA - *London* (1929): 17,720pts STF 28/18 TR D 32kn 1/3/2/2/3 AAFF 64
8x8-inch/50 VIII, 8x4-inch/45 V, 16x40mm (2pdr AA), 8xHMG. 2 a/c, 1 catapult, hangar.

CA - *London* (1929, Mod 1941): 17,980pts STF 28/18 TR D 32kn 4/4/2/2/3 AAFF 76
8x8-inch/50 VIII, 8x4-inch/45 V, 16x40mm (2pdr AA), 20x20mm. Radar and DCT.
After 1941 refit. Later upgrades: (1942) 8xHMG removed, 8x20mmAA, radar added. AAFF 64 (1943) aircraft removed, 15x20mm. AAFF 71. (1944) 20x20mm. AAFF 76. (1945) 4x40mm (Bofors) added. AAFF 84.

CA - *Shropshire* (1929): 17,720pts STF 28/18 TR D 32kn 1/3/2/2/3 AAFF 32
8x8-inch/50 VIII, 8x4-inch/45 V, 8xHMG. 2 a/c, 1 catapult, hangar.
Upgrades: (1942) 16x40mm (2pdr AA), 7x20mm, Radar added. AAFF 71.
modernisation before transfer to RAN (1943) aircraft & 8xHMG removed, 20x20mm remaining. AAFF 76.
Served as HMS *Shropshire* (1928-43).

CA - *Shropshire* (1929, Mod 1943): 17,980pts STF 28/18 TR D 32kn 4/4/2/2/3 AAFF 76
8x8-inch/50 VIII, 8x4-inch/45 V, 16x40mm (2pdr AA), 20x20mm. Radar and DCT.
After 1943 refit. Later upgrades: (1945) TT removed. 11X40mm (Bofors) added, 14x20mm left, AAFF 92.
Served as HMAS *Shropshire* (1943-54). Modernised London class.

CA - *Devonshire* (1929): 17,720pts STF 28/18 TR D 32kn 1/3/2/2/3 AAFF 32
8x8-inch/50 VIII, 8x4-inch/45 V, 8xHMG. 2 a/c, 1 catapult, hangar.
Upgrades: (1942) 16x40mm (2pdr AA), 8x20mm, Radar added. AAFF 64. (1943) 8xHMG removed, 32x40mm, 26x20mm. AAFF 114. (1944) a/c removed, 6x8-inch, 8x4-inch, 48x40mm, 32x20mm. AAFF 152.

CA - *Sussex* (1929): 17,720pts STF 28/18 TR D 32kn 1/3/2/2/3 AAFF 32
8x8-inch/50 VIII, 8x4-inch/45 V, 8xHMG. 2 a/c, 1 catapult, hangar.
Upgrades: (1942) 8x4-inch/45 & 8xHMG removed, 16x40mm (2pdr AA) & 10x20mm, radar added. AAFF 42.
(1944) aircraft removed, now 21x20mm. AAFF 53. (1945) TT removed, now 6x8-inch, 48x40mm (2pdr AA), 14x20mm. Radars updated. AAFF 110.

Norfolk class (1930, 2 off)

CA - *Norfolk* (1930): 17,640pts STF 28/18 TR D 32kn 4/4/2/2/3 AAFF 48
8x8-inch/50 VIII, 8x4-inch/45 XVI, 16x40mm (2pdr AA), 8xHMG, 8x21-inch TT. 2 a/c, 1 catapult, hangar.
Upgrades: (1941) 8xHMG removed, 6x20mm, radar added. AAFF 38. (1942) now 9x20mm. AAFF 49.
(1943) aircraft removed, now 12x20mm. AAFF 44. (1944) TT removed, now 6x8-inch, 8x4-inch, 24x40mm (2pdr AA), 32x20mm. Radars updated. AAFF 104.

CA - *Dorsetshire* (1930): 17,640pts STF 28/18 TR D 32kn 1/3/2/2/3 AAFF 48
8x8-inch/50 VIII, 8x4-inch/45 XVI, 16x40mm (2pdr AA), 8xHMG, 8x21-inch TT. 2 a/c, 1 catapult, hangar.
Upgrades: (1942) 9x20mm, radar added. AAFF 57. [sunk 5 April 1942]

York class (1930-31, 2 off)

CA - *York* (1930): 14,750pts STF 25/16 TR D 32kn 3/2/2/2/3 AAFF 24
6x8-inch/50 VIII, 4x4-inch/45 XVI, 2x40mm (2pdr AA), 8xHMG, 6x21-inch TT. 1 a/c, 1 catapult. [sunk 22 May 1941]

CA - *Exeter* (1931): 14,750pts STF 25/16 TR D 32kn 3/2/2/2/3 AAFF 24
6x8-inch/50 VIII, 4x4-inch/45 V, 2x40mm (2pdr AA), 8xHMG, 6x21-inch TT. 2 a/c, 2 catapults.
Upgrades: (1941) 16x40mm (2pdr AA) fitted, radar added. AAFF 52. [sunk 1 March 1942]

LIGHT CRUISERS

C - class (1917-1922, 6 off)

CL - *Caledon* (1917): 9,260pts STF 20/13 TR C 27kn 3/1/1/1/1 AAFF 15
5x6-inch/50 XII, 2x3-inch/45 I, 2x40mm (2pdr AA), 5x20mmAA, 8x21-inch TT.
Others: *Calyppo* (1917), *Caradoc* (1917), *Cardiff* (1917), & *Ceres* (1917).

CL - *Capetown* (1922): 9,260pts STF 20/13 TR C 27kn 3/1/1/1/1 AAFF 16
5x6-inch/50 XII, 2x3-inch/45 I, 2x40mm (2pdr AA), 6x20mmAA, 8x21-inch TT. Radar fitted.

Modified C-class (1917-19, 7 off)

CL - *Coventry* (1918): 9,260pts STF 20/13 TR C 27kn 3/1/1/1 AAFF 62
10x4-inch/45 V, 16x40mm (2pdr AA). Radar fitted.
Others: *Curlew* (1917).

CL - *Curacoa* (1918): 9,260pts STF 20/13 TR C 27kn 3/1/1/1 AAFF 32
8x4-inch/45 XIX, 4x40mm (2pdr AA).
Others: *Cairo* (1919), *Carlisle* (1918), & *Calcutta* (1919).

CL - *Columbo* (1919): 9,260pts STF 20/13 TR C 27kn 3/1/1/1 AAFF 15
5x6-inch/45 XII, 2x3-inch/45 I, 2x40mm (2pdr AA), 5x20mmAA, 8x21-inch TT.
Modified as Anti-Aircraft Cruiser (1943): 8x4-inch/45 XIX, 6x20mmAA. AAFF 30.

Australian Improved Town - class (1 off Australian)

CL - *Adelaide* (1922): 10,470pts STF 20/13 TR C 25kn 3/2/2/-/- AAFF 19
8x6-inch/50 XIII, 3x4-inch/45 V, 10xHMG, 2x21-inch TT. Upgrade: (1943) ASDIC & DC added.
Served as HMAS *Adelaide* (1922-45).

D - class (1918-22, 8 off)

CL - *Danae* (1918): 10,140pts STF 21/13 TR C 29kn 3/1/1/1 AAFF 17
6x6-inch/45 XII, 3x4-inch/45 V, 2x40mm (2pdr AA), 8x20mmAA, 12x21-inch TT.
Upgrades: (1943) now 5x6-inch, 3x4-inch, 8x40mm (2pdr AA), 16x20mmAA, Radar added. AAFF 37.
Others: *Dauntless* (1918), *Dragon** (1919), *Delhi* (1919), *Dunedin*** (1919), *Durban** (1921), *Diomedes* (1922), & *Despatch* (1922). * sunk as Normandy breakwater 1944. ** sunk 1941.

CL - *Delhi* (1919, US Mod. 1942): 10,140pts STF 21/13 TR C 29kn 3/1/1/1 AAFF 39
5x5-inch/35 USN, 8x40mm (2pdr AA), 8x20mmAA, Improved radars.

Emerald class (5 off)

CL - *Emerald* (1926): 13,580pts STF 23/15 TR C 33kn 3/1/1/1 AAFF 21
7x6-inch/45 XII, 3x4-inch/45 V, 2x40mm (2pdr AA), 8xHMG, 16x21-inch TT. 1 a/c, 1 catapult
Upgrades: (1943) 8xHMG removed, now 6x6-inch, 3x4-inch, 8x40mm (2pdr AA), 12x20mmAA, Radar added. AAFF 37. (1944) a/c & catapult removed, now 18x20mmAA, AAFF43.

CL - *Enterprise* (1926): 13,580pts STF 23/15 TR C 33kn 3/1/1/1 AAFF 21
7x6-inch/45 XII, 3x4-inch/45 V, 2x40mm (2pdr AA), 8xHMG, 16x21-inch TT. 1 a/c, 1 catapult
Upgrades: (1941) now 5x6-inch, 3x4-inch, 6x40mm (2pdr), 8xHMG, 16x21-inch TT. AAFF 29.
(1943) 7x6-inch, 3x4-inch, 8x40mm (2pdr), 12x20mmAA. Radar added. AAFF37.
(1944) Aircraft removed, now 16x20mmAA. AAFF 41.

Leander class (1933-34, 5 off)

CL - *Leander* (1933): 13,610pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. 1 Walrus a/c, 1 catapult
Upgrades: (1941) 5x20mmAA, AAFF 41. Radar added. (1943) 9x20mmAA, AAFF45. Aircraft removed.
Served as HMNZS *Leander* (1941-48).

CL - *Orion* (1934): 13,610pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. 1 Walrus a/c, 1 catapult
Upgrades: (1942) 8x40mm (2pdr), 7x20mmAA, (remove HMG) AAFF 47. Radars added (Types 284, 285, 279)

CL - *Neptune* (1934): 13,610pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. 1 Walrus a/c, 1 catapult
Upgrades: (1941) 3x40mm (2pdr), 15xHMG, AAFF 45. Radars added. [sunk Nov 1941]

CL - *Ajax* (1935): 13,610pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. 1 Walrus a/c, 1 catapult
Upgrades: (1942) 8x40mm (2pdr), 9x20mmAA. AAFF 61. Radar added. Aircraft removed.
Served as HMNZS *Achilles* (1941-46).

CL - *Achilles* (1933): 13,610pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 24
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. 1 Walrus a/c, 1 catapult
Upgrades: (1943) 6x6-inch, 8x4-inch, 16x40mm (2pdr), 16x20mmAA, 8x21-inch TT. AAFF 72.
(1943) Radar added. Aircraft removed. Served as HMNZS *Achilles* (1941-46).

Modified Leander class (3 off Australian)

CL - *Sydney* (1935): 13,468pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 24
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. ASDIC & DC. 1 Walrus a/c, 1 catapult
Served as HMAS *Sydney* (1935-41). [sunk 19 Nov 1941]

CL - *Perth* (1936): 13,420pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. ASDIC & DC. 1 Walrus a/c, 1 catapult
Upgrades: (Feb to Jul 1941) 4x40mm (2pdr), 2x20mm (It), AAFF 46. Radar added. Aircraft removed.
RN 1935-39. Served as HMAS *Perth* (from Jun 1939). [sunk 1 Mar 1942]

CL - *Hobart* (1936): 13,385pts STF 25/16 TR D 32kn 3/1/1/2 AAFF 36
8x6-inch/50 XXIII, 8x4-inch/45 XVII, 12xHMG, 8x21-inch TT. ASDIC & DC. 1 Walrus a/c, 1 catapult
Upgrades: (late 1942) 8x40mm (2pdr), 11x20mmAA, AAFF 63. Radar added. Aircraft removed.
(1945) 8x6-inch, 8x4-inch, 11x40mm (Bofors), 4x20mmAA, AAFF 50.
RN 1936-38. Served as HMAS *Hobart* (from Sep 1938-1962).

Arethusa class (1935-37, 4 off)

CL - *Arethusa* (1935): 10,900pts STF 22/14 TR D 32kn 3/1/1/3 AAFF 20
6x6-inch/50 XXIII, 4x4-inch/45 V, 8xHMG, 6x21-inch TT. Radar fitted. 1 a/c, 1 catapult
Upgrades: (1941) aircraft removed, 8x40mm (2pdr AA), 4x20mmAA, Radar added. AAFF 40.
(1943) 8xHMG removed, 8x4-inch, 11x20mmAA, improved radar. AAFF51.
(1944) 6x6-inch, 8x4-inch, 8x40mm (Bofors), 16x20mmAA. AAFF 56.

CL - *Galatea* (1935): 10,900pts STF 22/14 TR D 32kn 3/1/1/3 AAFF 20
6x6-inch/50 XXIII, 4x4-inch/45 V, 8xHMG, 6x21-inch TT. Radar fitted. 1 a/c, 1 catapult
Upgrades: (1941) a/c & catapult removed, now 8x40mm (2pdr AA), 8x20mmAA, improved radar. AAFF44.

CL - *Penelope* (1936): 10,900pts STF 22/14 TR D 32kn 3/1/1/3 AAFF 32
6x6-inch/50 XXIII, 8x4-inch/45 XVI, 8xHMG, 6x21-inch TT. Radar fitted. 1 a/c, 1 catapult
Upgrades: (1941) a/c & catapult removed, 8x40mm (2pdr AA), AAFF 48. (1942) 8x20mmAA, AAFF4 56

CL - *Aurora* (1937): 10,900pts STF 22/14 TR D 32kn 3/1/1/3 AAFF 32
6x6-inch/50 XXIII, 8x4-inch/45 XVI, 8xHMG, 6x21-inch TT. Radar fitted.
Upgrades: (1941) 8x40mm (2pdr AA), Radar added. AAFF 48. (1942) now 6x20mmAA, 16xHMG, AAFF 62.
(1943) radar upgrade.

Town class (8 off)

CL - *Southampton* (1937): 16,060pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
[sunk 11 Jan 1941]

CL - *Newcastle* (1937): 16,060pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1941) 2x20AA Rockets UP, Radar added. AAFF 68. (1942) 9x20mmAA, (remove HMG & AA
Rockets). AAFF 49. (1943) 19x20mmAA. Updated radars. Aircraft removed. AAFF 59.

CL - *Sheffield* (1937): 16,060pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1941) Radar added. AAFF 48. (1942) 6x20mmAA, (remove HMG). AAFF 46.
(1943) 14x20mmAA. Updated radars. AAFF 54. (1944) 22x20mmAA, Aircraft removed. AAFF 62.

CL - *Glasgow* (1937): 16,060pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1941) 2x20AA Rockets UP, Radar added. AAFF 68. (mid 1942) 9x20mmAA, (remove HMG &
AA Rockets). AAFF 49. (1943) 20x20mmAA. AAFF 60. (1944) 26x20mmAA, AAFF 66.
(1945) 9x6-inch, 8x4-inch, 20x40mm (2pdr), 26x20mmAA, 6x21-inch TT, Aircraft removed. AAFF 90.

CL - *Birmingham* (1937): 16,060pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (mid 1940) 1x20AA Rockets UP, AAFF 58. (mid 1941) remove AA Rockets, AAFF 48.
(mid 1942) 7x20mmAA, (remove HMG). Radars fitted. AAFF 47. (mid 1943) 18x20mmAA. Aircraft
removed. AAFF 58. (1945) 9x6-inch, 8x4-inch, 24x40mm (2pdr), 27x20mmAA, 6x21-inch TT. AAFF 99.

CL - *Gloucester* (1939): 16,530pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
[sunk 22 May 1941]

CL - *Liverpool* (1938): 16,530pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1942) 9x20mmAA, (remove HMG). Improved radars. AAFF 49. (1945) 9x6-inch, 8x4-inch,
20x40mm (2pdr), 19x20mmAA, 6x21-inch TT. (aircraft removed). AAFF 83.

CL - *Manchester* (1938): 16,530pts STF 26/17 TR D 32kn 5/2/2/1/5 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1941) Radar added. AAFF 48. (1942) 1x40mm (Bofors), 5x20mmAA, (remove HMG). AAFF 47.
(July 1942) now 8x40mm (2pdr), 3x40mm (Bofors), 5x20mmAA. AAFF 51. [sunk 13 Aug 1942]

Modified Town class (1939, 2 off)

CL - *Edinburgh* (1939): 17,520pts STF 27/18 TR D 32kn 5/4/2/1/5 AAFF 76
12x6-inch/50 XXIII, 12x4-inch/45 XVI, 16x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1940) Radar fitted. (1941) 6x20mmAA. AAFF 82. (1942) Updated radars (Types 284, 285 & 273).

CL - *Belfast* (1939): 17,520pts STF 27/18 TR D 32kn 5/4/2/1/5 AAFF 76
12x6-inch/50 XXIII, 12x4-inch/45 XVI, 16x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 Walrus a/c, 1 catapult
Upgrades: (1943) 8xHMG removed, 14x20mmAA, & Radars added. AAFF 82. (1944) 22x20mm. AAFF 90.
(1945) 12x6-inch, 8x4-inch, 36x40mm (2pdr), 14x20mmAA. Updated radars. Aircraft removed. AAFF 110.

Dido class (1940-43, total 16 anti-aircraft cruisers, consisting of 4 batches)

CL - *Dido* (1940): 11,370pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 48
8x5.25-inch/50 I, 8x40mm (2pdr AA), 8xHMG, 1x4-inch Starshell, 6x21-inch TT. (Dido class Batch 1)
Upgrades: (1942) 4-inch starshell & 8xHMG removed, now 10x5.25-inch, 8x40mm (2pdr), 5x20mmAA,
6x21-inch TT. AAFF 51. (1943) 10x20mm. Updated radars. AAFF 56.

CL - *Phoebe* (1940): 11,370pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 48
8x5.25-inch/50 I, 8x40mm (2pdr AA), 8xHMG, 1x4-inch Starshell, 6x21-inch TT. (Dido class Batch 1)
Upgrades: (1942) 4-inch starshell & 8xHMG removed, 12x40mm (2pdr), 11x20mmAA, AAFF 51.
(Dec 1942-June 43) only 6x5.25-inch. AAFF 45. (mid 1943) now 8x5.25-inch, 12x40mm (Bofors), 16x20mm.
Updated radar. AAFF 64.

CL - *Bonaventure* (1940): 11,370pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 48
8x5.25-inch/50 I, 8x40mm (2pdr AA), 8xHMG, 1x4-inch Starshell, 6x21-inch TT. (Dido class Batch 1)
[sunk 3 March 1941]

CL - *Euryalus* (1941): 11,370pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 54
10x5.25-inch/50 I, 8x40mm (2pdr AA), 8xHMG, 6x21-inch TT. (Dido class Batch 2)
Upgrades: (Sep 1941) 8xHMG removed, 5x20mmAA, AAFF 51. (mid 1943) 11x20mmAA. Updated radars.
AAFF 57. (mid 1944) now 8x5.25-inch, 12x40mm (2pdr), 15x20mm, 6x21-inch TT. New radars. AAFF 63.
Others: *Naïad* (1940), *Hermione* (1941), *Sirius* (1942), *Cleopatra* (1941), *Argonaut* (1941) – all similar.

CL - *Scyllia* (1942): 11,370pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 48
8x4.5-inch/45 III, 8x40mm (2pdr AA), 8x20mmAA, 6x21-inch TT. (Dido class Batch 3)
Upgrades: (1944) 20x20mmAA, Type 650 missile jamming gear fitted. AAFF 60.
Others: *Charybdis* (1941) – similar.

CL - *Bellona* (1943): 11,620pts STF 22/15 TR D 32kn 3/1/2/1/2 AAFF 60
8x5.25-inch/50 II, 12x40mm (2pdr AA), 12x20mmAA, 6x21-inch TT. (Modified Dido class Batch 4)
Upgrades: (1945) now 20x20mmAA. AAFF 68.
Others: *Royalist* (1943), *Black Prince* (1943), *Spartan* (1943), *Diadem* (1944) – all similar.

Fiji class (1940-42, 8 off)

CL - *Fiji* (1940): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT.
Upgrades: (1940) 16xHMG. Radar fitted. AAFF 56.

CL - *Kenya* (1940): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT.
Upgrades: (mid 1941) 16xHMG. 2x20mmAA, Radar fitted. AAFF 58. (1943) 16xHMG removed,
12x20mmAA, radar improved. AAFF 54. (1944) 16x20mm. AAFF 58.

CL - *Mauritius* (1941): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 x Walrus a/c & cat.
Upgrades: (1942) 4x20mmAA added. Radar fitted. AAFF 52. (mid 1943) aircraft & 8xHMG removed,
24x20mm, AAFF 72.

CL - *Nigeria* (1940): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 48
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 8xHMG, 6x21-inch TT. 2 x Walrus a/c & cat.
Upgrades: (1942) 4x20mm. Radar fitted. AAFF 52. (1943) a/c & 8xHMG removed, 16x20mm. AAFF 56.

CL - *Trinidad* (1941): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 50
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 16xHMG, 6x21-inch TT. 2 x Walrus a/c & cat.
Upgrade: (May 1942) 2x20mmAA fitted. AAFF 52.

CL - *Gambia* (1942): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 50
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 10x40mm (2pdr), 6x21-inch TT. 2 x Walrus a/c & cat.
Upgrade: (Feb 1942) 6x20mmAA fitted. AAFF 56. (1943) a/c removed, now 8x40mm (2pdr), 20x20mmAA.
Radars upgraded. AAFF 60.

CL - *Jamaica* (1942): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 50
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 10x20mmAA, 6x21-inch TT. 2 x Walrus a/c & cat.

CL - *Bermuda* (1942): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 50
12x6-inch/50 XXIII, 8x4-inch/45 XVI, 8x40mm (2pdr), 10x20mmAA, 6x21-inch TT. 2 x Walrus a/c & cat.
Upgrades: (Sep 1943) 16x20mmAA. AAFF 56. (mid 1944) a/c removed. 20x20mm. AAFF 62.
(1945) now 9x6-inch, 8x4-inch, 24x40mm (2pdr), 12x20mmAA, radars updated. AAFF 84.

Uganda class (1943, 3 off)
 CL - *Uganda* (1943): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 68
 9x6-inch/50 XXIII, 8x4-inch/45 XVI, 12x40mm (2pdr), 20x20mmAA, 6x21-inch TT. 2 x Walrus a/c & cat.
 Upgrade: (1945) aircraft removed. Now 6x6-inch, 8x4-inch, 28x40mm (2pdr), 12x20mmAA. AAFF 92.
 CL - *Newfoundland* (1943): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 64
 9x6-inch/50 XXIII, 8x4-inch/45 XVI, 12x40mm (2pdr), 16x20mmAA, 6x21-inch TT. 2 x Walrus a/c & cat.
 Upgrade: (1945) aircraft removed. now 8x40mm (Bofors), 22x20mmAA. AAFF 86.
 CL - *Ceylon* (1943): 15,080pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 64
 9x6-inch/50 XXIII, 8x4-inch/45 XVI, 12x40mm (2pdr), 16x20mmAA, 6x21-inch TT. 2 x Walrus a/c & cat.
 Upgrade: (1944) now 28x20mmAA. AAFF 76.
 Minotaur class (1944-45, 3 off)
 CL - *Minotaur* (May 1945): 15,220pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 96
 9x6-inch/50 XXIII, 10x4-inch/45 XVI, 16x40mm (2pdr), 13x40mm (Bofors), 8x20mmAA, 6x21-inch TT.
 Served as HMCS *Ontario* (1945-58).
 CL - *Swiftsure* (Jun 1944): 15,220pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 96
 9x6-inch/50 XXIII, 10x4-inch/45 XVI, 16x40mm (2pdr), 13x40mm (Bofors), 8x20mmAA, 6x21-inch TT.
 CL - *Superb* (Nov 1945): 15,220pts STF 24/16 TR D 31kn 4/2/2/1/4 AAFF 96
 9x6-inch/50 XXIII, 10x4-inch/45 XVI, 16x40mm (2pdr), 13x40mm (Bofors), 8x20mmAA, 6x21-inch TT.

MINELAYERS

Minelaying Cruiser

Adventure (1926): 12,830pts STF 23/15 TR C 28kn steam & 17 diesel AAFF 36
 4x4.7-inch/45 VIII, 8x40mm (2pdr), 8xHMG. Up to 340 mines.
 Upgrades: (1941) HMG removed, 9x20mm, & radars (Types 272, 285 & 291) added. AAFF 37.
 (1944) converted to repair ship for the Normandy landings.

Abdiel class Minelayers

Manxman (1941): 3975pts STF 17/11 TR C 38kn AAFF 34
 6x4-inch/45 XVI, 4x40mm (2pdr), 8xHMG. Upgrade: (1942) 12x20mm added. AAFF 46. Up to 156 mines.
 Others: *Adiel*, *Latona*, & *Welshman*.

Coastal Minelayer

Plover (1937): 1227pts STF 8/5 TR B 14kn AAFF 34
 1x3-inch, 1x20mmAA, 2xMG. Up to 100 mines. Upgrade: (1940) Air Warning Radar (Type 286).

DESTROYERS

WWI survivor old R class (1 off)

DD - *Skate* (1917/1941): 1365pts STF 11/7 TR B 32kn ASDIC AAFF 10
 1x4-inch/40 IV, 1x3-inch/40 V, 4x20mmAA. 2 DCR, 8 DCT.

Admiralty V class (WWII 17 off)

DD - *Vanity* (1918): 1810pts STF 13/9 TR B 34kn ASDIC AAFF 24
 4x4-inch/45 V, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Others: *Vanessa*, *Vanoc*, *Vanquisher*, *Vega*, *Venetia*, *Verdun*, *Vidette*, *Vimiera*, *Vivacious*, *Vixen*, & *HMAS Vendetta* (served with the RAN). [Unmodified Destroyers]

DD - *Vimy* (1918): 1810pts STF 13/9 TR B 34kn ASDIC AAFF 21
 3x4-inch/45 V, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 3x21-inch TT. Up to 60 mines.
 Others: *Versatile*, *Vesper*, *Velox*, & *Vortigern*. [Minelaying Destroyers]

Admiralty W class (WWII 18 off)

DD - *Wessex* (1918): 1650pts STF 13/9 TR B 34kn ASDIC AAFF 24
 4x4-inch/45 V, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Others: *Wakeful*, *Walpole*, *Westcott*, *Westminster*, *Whitby*, *Winchelsea*, *Winchester*, *Windsor*, *Wolfhound*, *Wrestler*, *Wrynech*, *HMAS Waterhen*, & *HMAS Voyager* (last 2 served with RAN). [Unmodified Destroyers]
 DD - *Warwick* (1918): 1810pts STF 13/9 TR B 34kn ASDIC AAFF 21
 3x4-inch/45 V, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 3x21-inch TT. Up to 60 mines.
 Others: *Walker*, *Watchman*, & *Whirlwind*. [Minelaying Destroyers]

Thornycroft V & W class (WWII 4 off)

DD - *Viscount* (1918): 1680pts STF 13/9 TR B 34kn ASDIC AAFF 24
 4x4-inch/45 V, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Others: *Viceroy*, *Wolsey*, & *Woolston*. [Unmodified Destroyers]

Thornycroft Modified W class (WWII 2 off)

DD - *Whishart* (1920): 1710pts STF 13/9 TR B 32kn ASDIC AAFF 25
 4x4.7-inch/45 I, 2x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Other: *Witch*. [Unmodified Destroyers]

Admiralty Modified W class (WWII 14 off)

DD - *Verity* (1919): 1710pts STF 13/9 TR B 32kn ASDIC AAFF 25
 4x4.7-inch/45 I, 2x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Others: *Vansittart*, *Venomous*, *Volunteer*, *Wanderer*, *Whitehall*, *Wren*, *Veteran*, *Whitshed*, *Wild Swan*,
Witherington, *Wivern*, *Wolverine*, & *Worcester*. [Unmodified Destroyers]

Admiralty Y class DD leaders (WWII 1 off)

DD - *Vampire* (1917): 1782pts STF 13/9 TR B 34kn ASDIC AAFF 24
 4x4-inch/45 V, 2x40mm (2pdr PomPom), 8xMG, 6x21-inch TT. 1 DCR, 24 DCs.
 Served as HMAS *Vampire*. [unmodified DD leader]

V & W destroyer upgrades – WAIR Escort (1938-40, 15 off - selected destroyers from above classes)

DD - *Vanity* (1918/1940): 1810pts STF 13/9 TR B 34kn ASDIC AAFF 20
 4x4-inch/45 XVI, 8xMG. 2xDCT, 2xDCR, 30-70 DCs.
 Others: (V class) *Véga*, *Verdun*, *Vimiera* & *Viven*. (W class) *Westminster*, *Whitley*, *Winchester*, *Wolfhound*, &
Wryneck. (Thorn. V & W) *Viceroy*, *Wolsey*, & *Woolston*. (Adm. Y leaders) *Valentine*, & *Valorous*.
 [WAIR Escort Upgrade Destroyers]

V & W destroyer upgrades – Long Range Escort (Apr 1940-44, 20 off - selected destroyers from above classes)

DD - *Vimy* (1918/1941): 1810pts STF 13/9 TR B 24kn ASDIC AAFF 13
 2x4-inch/45 V, 1x3-inch/40 V, 4x20mmAA. 1xHedgehog (1942), 2xDCT, 2xDCR, 30-70 DCs.
 Others: (V class) *Vanessa*, *Vanoc*, *Velox*, *Vidette*, *Vanquisher*, *Vesper*, *Versatile*, (W class) *Verity*, *Winchelsea*,
Wrestler, *Westcott*, *Walker*, *Warwick*, *Watchmen*, (Thorn. V & W) *Whitehall*,
Volunteer, *Vansittart*, & *Wanderer*. [Long Range Escort (LRE) Upgrade]

V & W destroyer upgrades – Short Range Escort (Apr 1942-45, 13 off - selected destroyers from above classes)

DD - *Whishart* (1920/1942): 1710pts STF 13/9 TR B 32kn ASDIC AAFF 14
 2x4-inch/45 V, 2x3-inch/40 V, 2x20mmAA. 1xHedgehog, 2xDCT, 2xDCR, 30-70 DCs.
 Others: (V class) *Vivacious*, *Vortigen*, (W class) *Walpole*, *Windsor*, (Thorn. Mod. W) *Witch*, (Adm. Mod. W)
Venomous, *Veteran*, *Whitshed*, *Wild Swan*, *Witherington*, *Wivern*, & *Wolverine*. [Short Range Escort (SRE)]

Scott class - Admiralty Type Flotilla Leaders (WWII 7 off including 1 RAN)

DD - *Bruce* (1918): 2370pts STF 14/9 TR B 36kn ASDIC AAFF 27
 5x4.7-inch/45 I, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 2xDCT, 4xDCR, 60 DCs.
 Others: *Campbell*, *Douglass*, *Mackay*, *Malcolm*, & *Montrose*.
 DD - *Stuart* (1918): 2370pts STF 14/9 TR B 36kn ASDIC (Type 123) AAFF 27
 5x4.7-inch/45 I, 1x3-inch/40 V, 2x40mm (2pdr PomPom), 5xMG, 6x21-inch TT. 2xDCT, 4xDCR, 60 DCs.
 Upgrades: (1941) 3x4.7-inch, 1x3-inch, 2x40mm (2pdr), 5x20mmAA, 6xMG, 6x21-inch TT. AAFF 27
 (1942) Escort. 2x4.7-inch, 1x3-inch, 2x40mm (2pdr), 3x20mmAA. Hedgehog & DCs. AAFF 16
 (1944) Transport. 1x4.7-inch, 12x40mm (2pdr), 7x20mmAA. Hedgehog & DCs. AAFF 34
 Served as HMAS *Stuart* with the RAN.

Shakespeare class - Thornycroft Type Flotilla Leaders (WWII 3 off)

DD - *Keppe* (1925): 2220pts STF 14/9 TR B 34kn ASDIC AAFF 27
 5x4.7-inch/45 I, 1x3-inch/40 VIII, 9xHMG, 6x21-inch TT. 2xDCT, 2xDCR, 33-60 DCs.
 Other: *Broke* (1925), [sunk 8 Nov 1942].
 DD - *Wallace* (1919): 2220pts STF 14/9 TR B 34kn ASDIC AAFF 27
 4x4-inch/45 XVII, 8xHMG. (WAIR upgrade early 1939) 2xDCT, 2xDCR, 33-60 DCs.
 Upgrade: (1944) 4x4-inch, 2x40mm (2pdr), 4x20mmAA. Radar upgraded. AAFF 20.

Admiralty S - class (1918-20 & 1924, WWII 11 off)

DD - *Shikari* (1924): 1500pts STF 11/7 TR B 32kn ASDIC AAFF 11
 3x4-inch/45 IV, 1x40mm (2pdr), 4x21-inch TT. 4xDCC, 33-60 DCs.
 Upgrades: (1940-41) 1x4-inch/45 IV, 1x3-inch/40 V, 8xHMG. AAFF 14. (later 112 DCs)
 Others: European Theatre - *Sabre* (1918), *Sturdy* (1919), *Scimitar* (1918), *Saladin* (1919), *Sardonyx* (1919).
 Pacific Theatre – *Tenedos* (1919), *Thanet* (1919), *Thracian* (1920), *Stronghold* (1919), & *Scout* (1918).

Town class (transferred from US Navy 1940, 50 off) [ex-Caldwell, Wickes & Clemson class USN]

DD - *Belmont* (1919/1940): 1785pts STF 14/9 TR B 28kn ASDIC AAFF 15
 4x4-inch/50 US, 1x3-inch/23 US,, 6x21-inch TT. 2xDCR, 33-60 DCs.
 (some torpedoes removed and replaced by a second 3-inch/23 US gun.) [Type A, 20 off]
 Others: *Belmont*, *Bevelly*, *Bradford*, *Broadway*, *Burnham*, *Burwell*, *Buxton*, *Cameron*,
Chesterfield, *Churchill*, *Clare*, *Ramsey*, *Reading*, *Ripley*, *Rockingham*, *Sherwood*, & *Stanley*.
 Also *St Criox*, & *St Francis* served with the RCN.

DD - *Campbelltown* (1919/1940): 1635pts STF 14/9 TR B 28kn ASDIC AAFF 15
 4x4-inch/50 US, 1x3-inch/23 US,, 6x21-inch TT. 2xDCR, 33-60 DCs.
 (some torpedoes removed and replaced by a second 3-inch/23 US gun.) [Type B, 12 off]
 Others: *Caldwell*, *Campbelltown*, *Castleton*, *Chelsea*, *Lancaster*, *Leamington*, *Lincoln*, *Mansfield*, *Montgomery*,
Richmond, *Salisbury*, & *Wells*.

DD - HMCS *Annapolis* (1919/1940): 1590pts STF 14/9 TR B 29kn ASDIC AAFF 15
 4x4-inch/50 US, 1x3-inch/23 US., 6x21-inch TT. 2xDCR, 33-60 DCs.
 (some torpedoes removed and replaced by a second 3-inch/23 US gun.) [Type C, 15 off]
 Others: *Bath, Brighton, Charlestown, Georgetown, Hamilton, Newark, Newmarket, Newport, Roxborough, St Albans, & St Mary's*. Also *Annapolis, Columbia, Niagara, St Clair* served with the RCN.

DD - *Lewes* (1918/1940): 1530pts STF 14/9 TR B 30kn ASDIC AAFF 15
 4x3-inch/50 US, 1x3-inch/23 US., 6x21-inch TT. 2xDCR, 33-60 DCs.
 (some torpedoes removed and replaced by a second 3-inch/23 US gun.) [Type D, 3 off]
 Others: *Lewes, Leeds, & Ludlow*.

A class trial destroyers

DD - *Ambuscade* (1926): 1788pts STF 14/9 TR C 37kn ASDIC AAFF 16
 4x4.7-inch/45 I, 2x40mm (2pr), 6x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch/40 V, 2x40mm (2pr), 2x20mmAA, 3x21-inch TT. AAFF 21.
 (1942) 2x4.7-inch, 1x3-inch, 2x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 15.

DD - *Amazon* (1927): 2055pts STF 13/9 TR C 37kn ASDIC AAFF 16
 4x4.7-inch/45 I, 2x40mm (2pr), 6x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Upgrade: (1942) 2x4.7-inch, 1x3-inch/40 V, 2x40mm, 2x20mm, 3x21-inch TT. Radar. Hedgehog. AAFF 15.

A class (1930-31, total 11 off, including DD leader)

DD - *Active* (1930): 2070pts STF 14/9 TR C 35kn ASDIC AAFF 16
 4x4.7-inch/45 IX, 2x40mm (2pr), 8x21-inch TT. 3 DCC, 8-32 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch/40 V, 2x40mm (2pr), 2x20mmAA, 4x21-inch TT. AAFF 21.
 (1942) 2x4.7-inch, 1x3-inch, 2x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 15.
 Others: *Acasta, Achates, Antelope, Anthony, Ardent, Arrow, & Acheron*. Also *Saguenay & Skeena* served RCN.

DD - *Codrington* (1930): 2340pts STF 15/9 TR C 35kn ASDIC AAFF 19
 5x4.7-inch/45 IX, 2x40mm (2pr), 8x21-inch TT. [DD leader] 3 DCC, 8-32 DC.

B class (1931, total 9 off, including DD leader)

DD - *Blanche* (1931): 2070pts STF 14/9 TR C 35kn ASDIC AAFF 16
 4x4.7-inch/45 IX, 2x40mm (2pr), 8x21-inch TT. 3 DCC, 8-32 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch/40 V, 2x40mm (2pr), 2x20mmAA, 4x21-inch TT. AAFF 21.
 (1942) 2x4.7-inch, 1x3-inch, 2x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 15.
 Others: *Basilisk, Beagle, Boadicea, Borcas, Brazen, Brilliant, & Bulldog*.

DD - *Keith* (1931): 2100pts STF 14/9 TR C 35kn ASDIC AAFF 16
 4x4.7-inch/45 IX, 2x40mm (2pr), 8x21-inch TT. [DD leader – extra crew] 3 DCC, 8-32 DC.

C class (1932 & 34, total 5 off, including DD leader, all in RCN service)

DD - HMCS *Ottawa* (1932): 2095pts STF 14/9 TR C 36kn ASDIC AAFF 23
 4x4.7-inch/45 IX, 1x3-inch/40 V, 4x40mm (2pr), 8x21-inch TT. 1 DCR, 2 DCT, 20-33 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch, 4x40mm (2pr), 2x20mmAA, 4x21-inch TT. AAFF 25.
 (1942) 2x4.7-inch, 1x3-inch, 4x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 15.
 Others: *Restigouche, St Laurent, & Fraser*. DD leader HMCS *Assiniboine*.

DD - HMCS *Assiniboine* (1932): 2125pts STF 14/9 TR C 36kn ASDIC AAFF 23
 4x4.7-inch/45 IX, 1x3-inch/40 V, 4x40mm (2pr), 8x21-inch TT. [DD leader] 1 DCR, 2 DCT, 20-33 DC.

D class (1932-33, total 9 off, including DD leader)

DD - *Dainty* (1932): 2095pts STF 14/9 TR C 36kn ASDIC AAFF 23
 4x4.7-inch/45 IX, 1x3-inch/40 V, 4x40mm (2pr), 8x21-inch TT. 1 DCR, 2 DCT, 20-33 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch, 4x40mm (2pr), 2x20mmAA, 4x21-inch TT. AAFF 25.
 (1942) 2x4.7-inch, 1x3-inch, 4x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 15.
 Others: *Daring, Decoy, Defender, Delight, Diamond, Diana, & Duchess*. Note *Decoy, & Diana* served in RCN as HMCS *Kootenay* (1943), & HMCS *Margaree* (1940).

DD - *Duncan* (1933): 2125pts STF 14/9 TR C 36kn ASDIC AAFF 23
 4x4.7-inch/45 IX, 1x3-inch/40 V, 4x40mm (2pr), 8x21-inch TT. [DD leader] 1 DCR, 2 DCT, 20-33 DC.

E & F classes (1934-35, 18 off, including DD leaders)

DD - *Fearless* (1934): 2142pts STF 14/9 TR C 36kn ASDIC AAFF 20
 4x4.7-inch/45 IX, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 20-33 DC.
 Upgrades: (1941) 4x4.7-inch, 1x3-inch, 4x40mm (2pr), 4x20mmAA, 4x21-inch TT. AAFF 27.
 (1942) 2x4.7-inch, 1x3-inch, 4x40mm (2pr), 2x20mmAA, 4x21-inch TT. Radar. Hedgehog. AAFF 19.
 Others: *Echo, Eclipse, Electra, Encounter, Escapade, Escort, Esk, Express* as well as *Fame, Firedrake, Foresight, Forester, Fortune, Foxhound, & Fury*.

DD - *Faulknor* (1935): 2280pts STF 15/10 TR C 36kn ASDIC AAFF 23
 5x4.7-inch/45 IX, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 20-33 DC.
 Others: *Exmouth & Faulknor*. [Both DD leaders with extra command staff]

G, H & I classes (1936-39 & 1942, total 35 off, including DD leaders)

DD - *Gallant* (1936): 2055pts STF 14/9 TR C 36kn ASDIC AAFF 20
 4x4.7-inch/45 IX, 8x20mmAA (or HMG), 8x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Others – *Garland, Grafton, Grenade, Greyhound, Griffin*. Also variant *Glowworm* below. DD Leader – *Grenville*.
 All survivors AA upgrade: (1941) 16x20mmAA, AAFP 28. 44 DC. (1943) 110 DCs.

DD - *Glowworm* (1936): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 20
 4x4.7-inch/45 IX, 8xHMG, 10x21-inch TT. 1 DCR, 2 DCT, 35 DC.

DD - *Grenville* (1936): 2234pts STF 14/9 TR C 36kn ASDIC AAFP 23
 5x4.7-inch/45 IX, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 44DC.

DD - *Hostile* (1936): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 20
 4x4.7-inch/45 IX, 8x20mmAA (or HMG), 8x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Others – *Hasty, Havock, Hereward, Hero, Hotspur, Hunter, Hyperion*. DD Leader – *Hardy*.
 In addition 6 ex-Brazilian DDs were commissioned by RN - see *Havant* below.

DD - *Havant* (1939): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 17
 3x4.7-inch/45 IX, 8x20mmAA (or HMG), 8x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Other Ex-Brazilian DDs – *Havelock, Hesperus, Highlander, Harvester, Hurricane*.

DD - *Hardy* (1936): 2234pts STF 14/9 TR C 36kn ASDIC AAFP 23
 5x4.7-inch/45 IX, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 44DC.

DD - *Ilex* (1937): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 20
 4x4.7-inch/45 IX, 8x20mmAA (or HMG), 10x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Others – *Imogen, Imperial, Isis*. DD Leader – *Inglefield* below. Minelaying version (4 off) see *Icarus*.
 In addition 2 ex-Turkish DDs were commissioned by RN - see *Inconstant* below.

DD - *Icarus* (1937): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 20
 4x4.7-inch/45 IX, 8x20mmAA (or HMG), 10x21-inch TT. 1 DCR, 2 DCT, 35 DC. Up to 60 mines.
 Others – *Impulsive, Intrepid, Ivanhoe*. Note 'A' & 'Y' 4.7-inch guns & TTs removed when mines carried.

DD - *Inconstant* (1942): 2055pts STF 14/9 TR C 36kn ASDIC AAFP 17
 3x4.7-inch/45 IX, 8x20mmAA (or HMG), 8x21-inch TT. 1 DCR, 2 DCT, 35 DC.
 Other Ex-Turkish DD – *Ithuriel*.

DD - *Inglefield* (1937): 2354pts STF 14/9 TR C 36kn ASDIC AAFP 23
 5x4.7-inch/45 IX, 8xHMG, 10x21-inch TT. 1 DCR, 2 DCT, 44DC.

J, K & N classes (24 off, including DD leaders)

DD - *Jackel* (1939): 2580pts STF 15/10 TR C 36kn ASDIC AAFP 30
 6x4.7-inch/45 XII, 4x40mm (2pdr), 4xHMG, 10x21-inch TT. 1 DCR, 2 DCT, 45 DC.
 Upgrade: (1941) HMG removed. Now 8x20mmAA, AAFP 34. (1943) 110 DCs.
 Others: *Jaguar, Juno, Janus, Javelin, Jersey, & Jupiter*. DD Leader – *Jervis* (larger crew only).

DD - *Kandahar* (1939): 2580pts STF 15/10 TR C 36kn ASDIC AAFP 30
 6x4.7-inch/45 XII, 4x40mm (2pdr), 4xHMG, 10x21-inch TT. 1 DCR, 2 DCT, 45 DC.
 Upgrade: (1941) HMG removed. Now 8x20mmAA, AAFP 34. (1943) 110 DCs.
 Others: *Kashmir, Kelvin, Khartoum, Kimberley, Kingston, & Kipling*. DD Leader – *Kelly* (larger crew only).

DD - *Nestor* (Feb 1941): 2700pts STF 15/10 TR C 36kn ASDIC AAFP 29
 6x4.7-inch/45 XII, 1x4-inch/45 V, 4x20mmAA, 4xHMG, 5x21-inch TT. 1 DCR, 2 DCT, 45 DC.
 Upgrade: (1942) HMG removed. Now 8x20mmAA, AAFP 33. (1943) 110 DCs. [sunk 16 June 1942]
 Others: *Nizam, Norman, & Nepal*. DD Leader – *Napier* (Nov 1940, larger crew only). All 5 served with RAN.
 Also 2 off Dutch N class (1942): *Van Galen, & Tjerk Hidde*. 1 off Polish N class (1942): *Piorun*.

L & M classes (16 off, including DD leaders)

DD - *Legion* (Dec 1940): 2925pts STF 16/10 TR C 36kn ASDIC AAFP 43
 8x4-inch/45 XVI, 1x4-inch/45 V, 4x40mm (2pdr), 8xHMG, 8x21-inch TT. 2 DCR, 2 DCT, 42 DC.
 Others: *Lance, Lively, Gurkha (ex-Larne)*.

DD - *Lightning* (May 1941): 2925pts STF 16/10 TR C 36kn ASDIC AAFP 19
 6x4.7-inch/45 XI, 1x4-inch/45 V, 4x20mmAA, 8xHMG, 8x21-inch TT. 2 DCR, 2 DCT, 42 DC.
 Others: *Lookout, & Loyal*. DD Leader – *Laforey* (larger crew only).

DD - *Matchless* (Feb 1942): 2925pts STF 16/10 TR C 36kn ASDIC AAFP 19
 6x4.7-inch/45 XI, 1x4-inch/45 V, 4x20mmAA, 8xHMG, 8x21-inch TT. 2 DCR, 2 DCT, 42 DC.
 Others: *Milne, Mahratta, Marksman, Musketeer, & Meteor, Marne, & Martin*. DD leader – *Matchless* (same).
 Polish M class: *Orkan* (ex-Myrmidon).

O & P classes (16 off, including DD leaders)

DD - *Oribi* (Jul 1941): 2454pts STF 15/10 TR C 37kn ASDIC AAFP 29
 4x4.7-inch/45 IX, 1x4-inch/45 V, 4x40mm (2pdr), 6x20mm, 4x21-inch TT. 2 DCR, 4 DCT, 70 DC.
 Others: *Offa, & Onslaught*. DD leader - *Onslow* (same). (Batch I).

DD - *Opportune* (Aug 1942): 2346pts STF 15/10 TR C 37kn ASDIC AAFF 26
4x4-inch/45 V, 4x40mm (2pdr), 6x20mm, 8x21-inch TT. 2 DCR, 4 DCT, 70 DC.
Others: *Obdurate, Obedient, & Orwell*. (Batch II).

DD - *Paladin* (Jun 1941): 2576pts STF 15/10 TR C 37kn ASDIC AAFF 29
5x4-inch/45 V, 4x40mm (2pdr), 6x20mm, 4x21-inch TT. 2 DCR, 4 DCT, 70 DC.
Others: *Panther, Partridge, Pathfinder, Penn, Petard, & Porcupine*. DD leader *Pakenham* (same).

Q & R classes (16 off, including DD leaders)

DD - *Quentin* (Apr 1942): 2578pts STF 15/10 TR C 36kn ASDIC AAFF 26
4x4.7-inch/45 IX, 4x40mm (2pdr), 6x20mm, 8x21-inch TT. 3 DCR, 3 DCT, 45 DC.
Others: *Qail*. DD leader - *Quilliam* (same). Served with RAN (1942-45): *Queenborough, Quadrant, Quality, Quiberon, & Quickmatch*.

DD - *Redoubt* (Oct 1942): 2600pts STF 15/10 TR C 36kn ASDIC AAFF 26
4x4.7-inch/45 IX, 4x40mm (2pdr), 6x20mm, 8x21-inch TT. 2 DCR, 4 DCT, 70 DC.
Others: *Racehorse, Raider, Rapid, Relentless, Rocket, & Roebuck*. DD leader - *Rotherham* (same).

Tribal class (1938-39, 16 off RN) (1942-43, 4 off RCN) (1942 & May 1945, 3 off RAN)

DD - *Afridi* (1938): 2882pts STF 16/11 TR C 36kn ASDIC AAFF 56
8x4.7-inch/45 IX/XII, 8x40mm (2pdr), 8xHMG, 4x21-inch TT. 1 DCR, 2 DCT, 30-46 DC.
Upgrade: (1941) 6x4.7-inch, 2x4-inch/45 XVI, 8x40mm (2pdr), 8x20mmAA, 4x21-inch TT. AAFF 56.
Others - *Ashanti, Bedouin, Cossack, Eskimo, Gurkha, Maori, Mashona, Matabele, Mohawk, Nubian, Punjabi, Sikh, Somali, Tartar, & Zulu*.

DD - *Iroquois* (Dec 1942): 2985pts STF 16/11 TR C 36kn ASDIC AAFF 56
6x4.7-inch/45 XII, 2x4-inch/45 XVI, 4x40mm (2pdr), 8x20mmAA, 4x21-inch TT. 1 DCR, 2 DCT, 30-46 DC.
Others: *Athabaskan* (Feb 1943), *Huron* (1943), & *Haida* (1943).

DD - *Arunta* (Apr 1942): 2985pts STF 16/11 TR C 36kn ASDIC AAFF 56
6x4.7-inch, 2x4-inch/45 XVI, 8x40mm (2pdr), 8x20mmAA, 4x21-inch TT. 1 DCR, 2 DCT, 30-46 DC.
Others: *Waramanga* (Nov 1942), *Bataan* (May 1945).

DESTROYER ESCORTS

Hunt class (1940-43, 86 completed)

DE - *Atherstone* (1940): 1530pts STF 12/8 TR B 27kn ASDIC AAFF 22
4x4-inch/45 XVI, 4x40mm (2pdr), 2x20mmAA. (Type I, 23 off) 1 DCR, 2 DCT, 40 DC.

DE - *Avon Vale* (1941): 1605pts STF 12/8 TR B 27kn ASDIC AAFF 28
6x4-inch/45 XVI, 4x40mm (2pdr), 2x20mmAA. (Type II, 33 off) 3 DCR, 2 DCT, 110 DC.

DE - *Airedale* (1942): 1605pts STF 12/8 TR B 27kn ASDIC AAFF 22
4x4-inch/45 XVI, 4x40mm (2pdr), 2x20mmAA, 2x21-inch TT. (Type III, 28 off) 3 DCR, 4 DCT, 110 DC.

DE - *Brecon* (Dec 1942): 1790pts STF 13/8 TR B 26kn ASDIC AAFF 32
6x4-inch/45 XVI, 4x40mm (2pdr), 2x20mmAA, 4xHMG, 3x21-inch TT 1 DCR, 2 DCT, 40 DC.
Other: *Brissenden* (Feb 1943) (Type IV, 2 off)

FRIGATES, CORVETTES & SLOOPS

River class (1942-45, 145 completed) Frigates

Rother (Apr 1942): 2085pts STF 13/8 TR B 20kn ASDIC AAFF 16
2x4-inch/40 XIX, 10x20mmAA. Hedgehog, 2 DCR, 8 DCT, 150 DC.
Others: RN service, 55 off, 1xRNN (Dutch), 6xFFN, 2xUSN.

Australian River class (1943-45, 6 completed, Batches I & II) Frigates

Gascoyne (Nov 1943): 2160pts STF 13/8 TR B 22kn ASDIC AAFF 14
2x4-inch/45 XVI, 8x20mmAA. Radar SC, ASDIC. Hedgehog, 1 DCR, 2 DCT, 50 DC.
Others: *Barcoo, Burdekin, & Hawkesbury*.

Lachlan (Nov 1943): 2355pts STF 13/8 TR B 22kn ASDIC AAFF 26
4x4-inch/45 XVI, 3x40mm (Bofors), 8x20mmAA. Radar SC, ASDIC. Hedgehog, 1 DCR, 2 DCT, 40 DC.
Other: *Diamantina*.

Canadian River class (1943-45, 71 completed) Frigates

Waskesiu (Jun 1943): 2202pts STF 13/8 TR B 20kn ASDIC AAFF 14
2x4-inch/45 XVI, 8x20mmAA. (RCN service, 71 off) Hedgehog, 2 DCR, 8 DCT, 150 DC.

Captain class (1942-43, 78 completed) Frigates – built by US under lend lease.

Bayntun (Feb 1943): 1740pts STF 12/8 TR B 21kn ASDIC AAFF 22
3x3-inch/50 DP, 2x40mm (Bofors), 9x20mmAA. [Everts class DE] Hedgehog, 2 DCR, 4 DCT, 200 DC.

Bentinck (May 1943): 2100pts STF 13/9 TR B 23kn ASDIC AAFF 21
3x3-inch/50 DP, 2x40mm (Bofors), 8x20mmAA. [Buckley class DE] Hedgehog, 2 DCR, 4 DCT, 200 DC.

Loch class (1944-45, 40 completed) Frigates
Loch Fada (Apr 1944): 2187pts STF 13/9 TR B 20kn ASDIC (Type 144/147) AAFF 23
 1x4-inch/45 V, 4x40mm (2pdr), 12x20mmAA. Radar (Type 277) 2 Squid, 1 DCR, 2 DCT, 15 DC.

Flower class (1940-45, 294 served in WWII) Corvettes
Gladiolus (Apr 1940): 1410pts STF 9/6 TR A 16kn ASDIC (Type 123) AAFF 05
 1x4-inch/45 IX, 2xHMG. Minesweeping gear. 2 DCR, 2 DCT, 40 DC.
 Upgrade: (1942) 1x4-inch, 1x40mm (pompom), 2x20mmAA. AAFF 07.
 M/S gear removed. ASDIC (Type 127), Hedgehog fitted (1943/44), DCT, 2 DCR, 70 DCs.

Castle class (1943-45, 44 off completed) Corvettes
Hadleigh Castle (Sep 1943): 1616pts STF 11/7 TR A 16kn ASDIC (Type 145/147) AAFF 09
 1x4-inch/40 XIX, 6x20mmAA. Minesweeping gear. Squid, 1 DCR, 15 DC.

Australian Bathurst class (1941-45, 56 served in RAN, 4 served in RIN) Minesweepers / Corvettes
Bathurst (Dec 1941): 1100pts STF 9/6 TR A 15kn ASDIC (Type 128) AAFF 04
 1x4-inch/45 IX, 1x20mmAA. 4 DCC, 2 DCT, 41 DC.
Armidale (Jun 1942): 1020pts STF 9/6 TR A 15kn ASDIC (Type 128) AAFF 06
 1x4-inch/45 XVI, 3xHMG. 2 DCC, 14 DC.
 Others: various armaments as available, incl 4-inch & 3-inch main guns. Above examples are typical.

Bridgewater class (1929, 2 off) Sloops.
Bridgewater (1929): 1568pts STF 11/7 TR B 17kn ASDIC AAFF 10
 2x4-inch/45 V, 4xHMG. 1 DCR, 2 DCT, 15 DC.
 Upgrade: (1941/42) 2x4-inch, 1x40mm (2pdr), 3x20mmAA. 80 DCs. Radar & HF/DF fitted. AAFF 11.
 Other: *Sandwich* (1929).

Hastings class (1930, 4 served RN, 1 *Hindustan* served RIN) Sloops.
Hastings (1930): 1568pts STF 11/7 TR B 16kn ASDIC AAFF 10
 2x4-inch/45 V, 4xHMG. 1 DCR, 2 DCT, 15 DC.
 Upgrade: (1941/42) 2x4-inch, 1x40mm (2pdr), 3x20mmAA. 80 DCs. Radar & HF/DF fitted. AAFF 11.

Shoreham class (1931-32, 9 off) Sloops.
Shoreham (1931): 1725pts STF 12/8 TR B 16kn ASDIC AAFF 10
 2x4-inch/45 V, 4xHMG. 1 DCR, 2 DCT, 15 DC.
 Upgrade: (1941/42) 2x4-inch, 1x40mm (2pdr), 3x20mmAA. 90 DCs. Radar & HF/DF fitted. AAFF 11.

Banff class (1927-32, 10 off) Sloops. Built for US Coast Guard, 1941 lend lease to RN.
Fishguard (1928/1941): 2355pts STF 11/7 TR B 16kn ASDIC AAFF 07
 1x5-inch, 1x3-inch, 4x20mmAA. 1 DCR, 2 DCT, 40 DC.
 Upgrade: (1942/43) 2x4-inch, 1x40mm (2pdr), 3x20mmAA. 80 DCs. Radar & HF/DF fitted. AAFF 11.

Grimsby class (1934-36, 8 for RN & 1 for RIN) Sloops.
Grimsby (1934): 1510pts STF 11/7 TR B 16kn ASDIC AAFF 11
 4x4.7-inch/45 IX, 1x3-inch AA, 4x47mm/50 (3pdr). 1 DCR, 2 DCT, 40 DC.
 Upgrades: (1942) 4x4-inch/45 XVI, 1x40mm (Bofors), 6x20mmAA, 1xHMG. AAFF 21. Hedgehog added.
 Others: *Leith*, *Lowestoft*, *Wellington*, *Londonberry*, & *Deptford*. *Indus* (1935) for RIN.
Aberdeen (1936): 1510pts STF 11/7 TR B 16kn ASDIC AAFF 24
 4x4-inch/45 XVI, 4x47mm/50 (3pdr), 4xHMG. 1 DCR, 2 DCT, 40 DC.
 Upgrades: (1942) 4x4-inch/45 XVI, 1x40mm (Bofors), 6x20mmAA, 1xHMG. AAFF 21. Hedgehog added.
 Other: *Fleetwood*.

Australian Grimsby class (1937-40, 4 completed) Sloops
Swan (1937): 1590pts STF 11/7 TR B 16kn ASDIC AAFF 21
 3x4-inch/45 XVI, 4x47mm/50 (3pdr), 4xHMG. 2 DCR, 2 DCT, 40 DC.
 Upgrade: (1942) 3pdrs removed. 4x4-inch/45 XVI, 1x40mm (Bofors), 6x20mmAA, 1xHMG. AAFF 21.
 Other: *Yarra* (1938). [*Yarra* sunk 4 Mar 1942]
Warrego (1940): 1590pts STF 11/7 TR B 16kn ASDIC AAFF 13
 3x4-inch/45 XVI, 4xHMG. 2 DCR, 4 DCT, 40 DC.
 Upgrade: (1941) 2x20mmAA added. AAFF 17.
 (1942) 4x4-inch/45 XVI, 1x40mm (Bofors), 6x20mmAA, 1xHMG. AAFF 21.
 Other: *Parramatta* (1940). [*Parramatta* sunk 27 Nov 1941]

Kingfisher class (1935-39, 9 off) Sloops.
Kingfisher (1935): 777pts STF 10/7 TR B 20kn ASDIC AAFF 03
 1x4-inch/45 XVI. Upgrade: (1941) 2x20mmAA. AAFF 05. 1 DCR, 2 DCT, 40 DC.

Bittern class (1934-37, 3 off) Sloops.
Bittern (1937): 1785pts STF 11/7 TR B 18kn ASDIC AAFF 22
 6x4-inch/45 XVI, 4xHMG. 1 DCR, 2 DCT, 90 DC.
 Others: *Enchantress* (1934) - 4x4.7-inch & 60 DCs, & *Stork* (1936). [*Bittern* sunk 30 Apr 1940]

Egret class (1938, 3 off) Sloops.

Egret (1938): 1800pts STF 12/8 TR B 19kn ASDIC AAFF 28
8x4-inch/45 XVI, 4xHMG. 1 DCR, 2 DCT, 40 DC.
Others: *Auckland*, & *Pelican*. [*Auckland* sunk 24 June 1941]

Black Swan class (1939-43, 8 for RN & 4 for RIN) Sloops.

Black Swan (1939): 1875pts STF 13/8 TR B 19kn ASDIC AAFF 30
6x4-inch/45 XVI, 4x40mm (2pdr), 4xHMG. 1 DCR, 2 DCT, 40 DC.

Modified Black Swan class (1942-44, 18 for RN & 2 for RIN) Sloops.

Cygnnet (Dec 1942): 2025pts STF 13/8 TR B 20kn ASDIC AAFF 38
6x4-inch/45 XVI, 4x40mm (2pdr), 12x20mmAA. Hedgehog, 1 DCR, 2 DCT, 110 DC.

MINESWEEPERS

Castle class (1917-1920, about 280 off, typical of early WWII) Minesweeping Trawler

Alexander Scott (1917): 540pts STF 6/4 TR A 10kn AAFF 03
1x3-inch/50. Minesweeping gear (acoustic & magnetic).

Bangor class (Sep 1940-Jul 1945, 109 off completed) Served with RN (44 off), RCN (55 off), & RIN (10 off).

Bangor (1940): 906pts STF 7/4 TR A 16kn AAFF 07
1x3-inch, 4xHMG. Minesweeping gear (acoustic or magnetic only) (Diesel variant)
Blyth (1941): 1010pts STF 7/5 TR A 16kn AAFF 07
1x3-inch, 4xHMG. Minesweeping gear (acoustic or magnetic only) (Reciprocating variant)
Androssan (1942): 984pts STF 7/5 TR A 16kn AAFF 07
1x3-inch, 4xHMG. Minesweeping gear (acoustic or magnetic only) (Turbine variant)

Smaller AA armament varied depending on user RN/RCN/RIN and availability. Canadians 1x4-inch used.

Algerine class (Sep 1942-Jul 1944, 110 off completed) Served with RN (50 off), & RCN (60 off).

Algerine (1942): 1570pts STF 10/6 TR A 16kn AAFF 07
1x4-inch/45 V, 4xHMG. Minesweeping gear (acoustic & magnetic). 2 DCR, 4 DCT, 40 DC.
Escort versions: extra - A/S Hedgehog, & 90 DCs.

Catherine class (Sep 1943, 22 off) US AUK class BAMs transferred to RN.

Catherine (1943): 1350pts STF 9/6 TR A 18kn AAFF 18
2x3-inch/50, 2x40mm, 8x20mmAA. Minesweeping gear (acoustic & magnetic). 2 DCR, 5 DCT, 40 DC.
Escort versions: extra A/S - 2 DCR, 4 DCT, Hedgehog, & 90 DCs.

MOTOR TORPEDO BOATS (MTB / PT)

Vosper 70ft boats (1939-42, 32 off) Fast Attack Craft.

MTB (1939): 48pts STF 3/2 TR A 33kn 4xHMG, 2x21-inch TT. AAFF 04.

Vosper 72ft boats (1941-44, 177 off) Fast Attack Craft.

MTB (1941): 63pts STF 3/2 TR A 40kn 2xHMG, 2xMG, 2x21-inch TT. AAFF 03.

Vosper 73ft boats (1944-45, 29 off) Fast Attack Craft.

MTB (1944): 68pts STF 3/2 TR A 40kn 1x20mmAA, 4xMG, 4x18-inch TT. AAFF 03.

Fairmile D class boats (1943-45, 192 off) Fast Attack Craft.

MTB (1943): 156pts STF 5/3 TR A 31kn 4xDCs. 1x57mmAA, 2x20mmAA, 4x18-inch TT. AAFF 04.
MGB (1943): 135pts STF 5/3 TR A 27kn 4x DCs. 1x57mmAA, 2x20mmAA, 4x18-inch TT. AAFF 04.

SUBMARINES

H - class (9 off still in commission 1939)

SM - *H.28* (1918): 750pts STF 7/5 TR B 17.5kn, 10.5kn (submerged) Test depth 100ft
Submerged: 4x21-inch TT (4 bow) with 6 TTs. Surface: 2xMG. AAFF 02
Radio, hydrophones. Crash dive 30 sec. 1,900nm@8kn surface. 24nm@4kn submerged.
Others: (1919-20): *H.31*, *H.32*, *H.33*, *H.34*, *H.43*, *H.44*, *H.49*, & *H.50*.

L - class (3 off still in commission 1939)

SM - *L.23* (1924): 1620pts STF 10/6 TR B 17.5kn, 10.5kn (submerged) Test depth 150ft
Submerged: 4x21-inch TT (4 bow) with 8 TTs. Surface: 1x4-inch/40, 2xMG. AAFF 05
Radio, hydrophones. Crash dive 30 sec. 3,800nm@10kn surface. 75nm@4kn submerged.
Others: (1924-26): *L.26*, & *L.27*.

O - class (Group I, 3 off)

SM - *Oberon* (1927): 2805pts STF 12/8 TR C 15kn, 9kn (submerged) Test depth 230ft
Submerged: 8x21-inch TT (6 bow, 2 stern) with 16 TTs. Surface: 1x4-inch/40, 2xMG. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 4,560nm@10kn surface. 60nm@4kn submerged.
Others: (1927): *Otway*, & *Oxley*.

O - class (Group II, 6 off)

SM - *Odin* (1929): 3057pts STF 12/8 TR C 17.5kn, 9kn (submerged) Test depth 230ft
Submerged: 8x21-inch TT (6 bow, 2 stern) with 14 TTs. Surface: 1x4-inch/40, 2xMG, up to 18 mines. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 5,180nm@11kn surface. 50nm@4kn submerged.
Others: (1929): *Olympus, Orpheus, Osiris, Oswald, & Otis*.

P - class (5 off)

SM - *Parthian* (1931): 3060pts STF 12/8 TR C 17.5kn, 9kn (submerged) Test depth 300ft
Submerged: 8x21-inch TT (6 bow, 2 stern) with 14 TTs. Surface: 1x4-inch/40, 2xMG, up to 18 mines. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 7,050nm@9kn surface. 62nm@4kn submerged.
Others: (1930-31): *Perseus, Proteus, Pandora, & Phoenix*.

R - class (4 off)

SM - *Regent* (1930): 3045pts STF 12/8 TR C 17.5kn, 9kn (submerged) Test depth 300ft
Submerged: 8x21-inch TT (6 bow, 2 stern) with 14 TTs. Surface: 1x4-inch/40, 2xMG, up to 18 mines. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 7,050nm@9kn surface. 70nm@4kn submerged.
Others: (1930-32): *Regulus, Rover, & Rainbow*.

Thames class (3 off)

SM - *Thames* (1932): 4020pts STF 15/10 TR C 22kn, 10kn (submerged) Test depth 200ft
Submerged: 6x21-inch TT (6 bow) with 14 TTs. Surface: 1x4-inch/40, 2xMG. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 6,260nm@12kn surface. 115nm@4kn submerged.
Others: (1932-35): *Severn, & Clyde*. 19,900@5kn surface.

Porpoise class (6 off)

SM - *Porpoise* (1933): 3235pts STF 12/8 TR C 15.5kn, 8.5kn (submerged) Test depth 220ft
Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x4-inch/40, 2xMG. Up to 50 mines. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 40 sec. 6,300nm@10kn surface. 64nm@4kn submerged.
Others: (1933-39): *Narwhal, Rorqual, Grampus, Seal, & Cachalot*.

S-class (Group I 4 off)

SM - *Sturgeon* (1933): 1390pts STF 9/6 TR C 13.5kn, 10kn (submerged) Test depth 300ft
Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x3-inch/50 QF, 1xMG. AAFF 04
Radio, hydrophones, ASDIC. Crash dive 30 sec. 3,800nm@10kn surface. 64nm@2kn submerged.
Others: (1932-33): *Swordfish, Seahorse, & Starfish*.

S-class (Group II 8 off)

SM - *Sealion* (1934): 1440pts STF 9/6 TR C 13.5kn, 10kn (submerged) Test depth 300ft
Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x3-inch/50 QF, 1xMG. AAFF 04
Radio, hydrophones, ASDIC. Crash dive 30 sec. 6,000nm@10kn surface. 64nm@2kn submerged.
Others: (1934-38): *Salmon, Spearfish, Shark, Snapper, Sunfish, Sterlet, & Seawolf*.

S-class (Group IIIA 5 off)

SM - *Safari* (1942): 1485pts STF 9/6 TR C 15kn, 10kn (submerged) Test depth 350ft
Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x3-inch/50 QF, 1xMG. AAFF 04
Radio, hydrophones, ASDIC. Crash dive 30 sec. 6,000nm@10kn surface. 120nm@3kn submerged.
Others: (1942-45): *Sahib, Saracen, Satyr, & Sceptre*.

S-class (Group IIIB 25 off completed)

SM - *Sybil* (1942): 1485pts STF 9/6 TR C 15kn, 10kn (submerged) Test depth 350ft
Submerged: 7x21-inch TT (6 bow internal, 1 stern external) with 13 TTs. Surface: 1x3-inch/50 QF, 1x20mmAA.
Radio, hydrophones, ASDIC. Air Warning Radar. Crash dive 30 sec.
6,000nm@10kn surface. 120nm@3kn submerged. AAFF 04
Others: (1942-45): *P-222, Sea Dog,, Sea Nymph, Sea Rover, Sirdar, Spiteful, Seraph, Shakespeare, Splendid, Sportsman, Stoic, Stonehenge, Storm, Stratagem, Stubborn, Surf, Syrtis, Spirit, Statesman, Strongbow, Spark, Scythian, Scotsman, & Sea Devil*.

S-class (Group IIIC 18 off completed)

SM - *Shalimar* (1943): 1485pts STF 9/6 TR C 15kn, 10kn (submerged) Test depth 350ft
Submerged: 6x21-inch TT (6 bow internal) with 12 TTs. Surface: 1x4-inch/40 QF, 1x20mmAA. AAFF 04
Radio, hydrophones, ASDIC. Crash dive 30 sec. 6,000nm@10kn surface. 120nm@3kn submerged.
Others: *Sturdy, Stygian, Subtle, Supreme, Seascout, Selene, Saga, Schorcher, Sidon, Sleuth, Solent, Spearhead, Springer, Spur, Sanguine, Senescal, & Sentinel*.

T-class (Group I 22 off)

SM - *Triton* (1938): 2362pts STF 12/8 TR C 15kn, 9kn (submerged) Test depth 300ft
Submerged: 10x21-inch TT (6 bow, 4 external) with 16 TTs (or 18 mines). Surface: 1x4-inch/40 QF, 1x20mm.
Radio, hydrophones, ASDIC. Crash dive 30 sec. 8,000nm@10kn surface. 40nm@5kn submerged. AAFF 04
Others: (1938-42) *Triton, Thesis, Tribune, Trident, Triumph, Taku, Tarpon, Thistle, Tigris, Triad, Truant, Tuna, Talisman, Tetrarch, Torbay, Tempest, Thorn, Thrasher, Traveller, Trooper, Trusty, Turbulent*. [14 lost in WWII]

T-class (Group II 31 off)

SM - *Trespasser* (1942): 2360pts STF 12/8 TR C 15kn, 9kn (submerged) Test depth 300ft
 Submerged: 11x21-inch TT (6 bow, 4 external, 1 aft) with 17 TTs. Surface: 1x4-inch/40 QF, 1x20mm. AAFF 04
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 11,000nm@10kn surface. 40nm@5kn, 9nm@9kn submerged.
 Others: (1942-45) *Trespasser*, *Tutankamen* (P311), *Taurus*, *Tactician*, *Truculant*, *Templar*, *Tally-ho*, *Tantalus*,
Tantivy, *Telemachus*, *Talent*, *Terrapin*, *Thorough*, *Thule*, *Tudor*, *Tireless*, *Token*, *Tradewind*, *Trenchard*, *Tiptoe*,
Trump, *Taciturn*, *Tapir*, *Tarn*, *Talent*, *Teredo*, *Tabard*, *Totem*, *Truncheon*, *Turpin*, *Thermopylae*. [1 lost in WWII]

U-class (Group IA 3 off)

SM - *Unity* (1938): 1095pts STF 8/5 TR C 11.5kn, 10kn (submerged) Test depth 300ft
 Submerged: 6x21-inch TT (4 bow, 2 bow external) with 10 TTs. Surface: 3xLMG. AAFF 01
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 3,800nm@10kn surface. 120nm@2kn submerged.
 Others: (1938-42) *Unity*, *Undine*, *Ursula*.

U-class (Group IB 4 off)

SM - *Upholder* (1940): 1095pts STF 8/5 TR C 11.5kn, 9kn (submerged) Test depth 300ft
 Submerged: 4x21-inch TT (4 bow, 2 bow external) with 10 TTs. Surface: 1x3-inch/50 QF. AAFF 03
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 3,800nm@10kn surface. 120nm@2kn submerged.
 Others: (1938-42) *Unique*, *Upholder*, *Upright*, *Upmost*.

U-class (Group II 8 off)

SM - *Undaunted* (1940): 1098pts STF 8/5 TR C 11.5kn, 9kn (submerged) Test depth 300ft
 Submerged: 4x21-inch TT (4 bow) with 8 TTs. Surface: 1x3-inch/50 QF. AAFF 03
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 3,800nm@10kn surface. 120nm@2kn submerged.
 Others: (1938-42) *Umpire*, *Una*, *Unbeaten*, *Undaunted*, *Union*, *Urchin*, *Urge*, *Usk*.

U-class (Group III 35 off)

SM - *P-32* (1941): 1125pts STF 8/5 TR C 12.5kn, 9kn (submerged) Test depth 300ft
 Submerged: 6x21-inch TT (4 bow) with 8 TTs. (or 6 mines). Surface: 1x3-inch/50 QF. AAFF 03
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 5,000nm@10kn surface. 120nm@2kn submerged.
 Others: (1941-42) *P-32*, *P-33*, *P-36*, *P-38*, *P-39*, *P-41*, *P-47*, *P-52*, *Ullswater*, *Ultimatum*, *Umbra*, *Unbending*,
Unbroken, *Unison*, *United*, *Unrivalled*, *Unruffled*, *Unruly*, *Unseen*, *Ultor*, *Unshaken*, *Unsparing*, *Usurper*,
Universal, *Untamed*, *Untiring*, *Uther*, *Unswerving*, *Upstart*, *Vandal*, *Varangian*, *Varne I*, *Vortex*, *Vox I*, *Vulpine*.
 [total U-class 19 lost in WWII]

V-class (22 off completed)

SM - *Venturer* (1943): 1110pts STF 9/6 TR C 12.5kn, 9kn (submerged) Test depth 300ft
 Submerged: 4x21-inch TT (4 bow) with 8 TTs. Surface: 1x3-inch/50 QF, 3xMG. AAFF 06
 Radio, hydrophones, ASDIC. Crash dive 30 sec. 4,700nm@10kn surface. 30nm@9kn submerged.
 Others: (1943-45) *Upshot*, *Urtica*, *Vampire*, *Variance*, *Veldt*, *Vengeful*, *Vigorous*, *Viking*, *Vineyard*, *Virtue*, *Visigoth*,
Vortex, *Vox (II)*, *Vagabond*, *Varne (II)*, *Virulent*, *Vivid*, *Volatile*, *Voracious*, *Votary*, & *Vulpine*.

A-class (18 off completed)

SM - *Acheron* (1944): 2430pts STF 12/8 TR C 18.5kn, 8kn (submerged) Test depth 350ft
 10x21-inch TT (4 bow & 2 stern internal, 2 bow & 2 stern external) with 20 TTs.
 Surface: 1x4-inch/40 QF, 1x20mmAA, 3xMG. Radio, hydrophones, ASDIC. AAFF 07
 Crash dive 30 sec. 10,500nm@11kn surface. 90nm@3kn, & 16nm@8kn submerged.
 Others: (1944-45) *Ace*, *Achates*, *Aeneas*, *Affray*, *Alaric*, *Alcide*, *Alderney*, *Alliance*, *Ambush*, *Anchorite*, *Amphion*,
Andrew, *Astute*, *Auriga*, *Aurochs*, *Artemis*, & *Artful*.

BRITISH AMPHIBIOUS VESSELS:

Landing Ship Dock: (1943-45, 21 completed. 4 used by RN under Lend-Lease)

LSD - *Eastway* (Dec 1943): 6,048pts STF 25/16 TR A 17kn AAFF 27
 1x3-inch/50, 4x40mm (2pdr), 16x20mmAA. Floodable well deck.
 Carrying 3xLCT Mk V (ea 3xHeavy Tank), 47xDUKW, or 41xLVT & 240 men.
 Others: *Highway*, *Northway*, & *Oceanway*.

Landing Ship Infantry:

LSI - *Glen* (Sep 1940): 9,919pts(grt) STF 28/18 TR A 18kn AAFF 46
 6x4-inch/45 Mk XVI, 8x40mm (2pdr), 12x20mmAA. Carrying 12 LCA & 1 LCM, with 700 men.
 Others: *Glenearn*, & *Glenroy*. (1940, 3 used by RN, modified from Glen Line)
 LSI - *Invicta* (Jun 1942): 4,220pts(grt) STF 18/12 TR A 22kn AAFF 06
 1x40mm (2pdr), 4x20mmAA. Carrying 6 LCA with 250 men.
 LSI - *Kanimbla* (1935/1943): 11,000pts(grt) STF 26/17 TR A 19kn AAFF 22
 1x4-inch, 2x3-inch HA, 2x40mm (2pdr), 12x20mmAA. Carrying 22 LCA & 2 LCM with 1250 men.
 Served with RN as Armed Merchant Cruiser (1939-43), and with RAN as Landing Ship Infantry (1943-45).

LSI - *Manoora* (1935/1943): 10,856pts(grt) STF 26/17 TR A 15kn AAFF 14
1x6-inch, 2x3-inch HA, 8x20mmAA. Carrying 17 LCA & 2 LCM with 1250 men.
Aircraft: 1 Walrus amphibian.
Served with RAN – as Armed Merchant Cruiser (1939-43), and Landing Ship Infantry (1943-45).

LSI - *Westralia* (1929/1943): 8,108pts(grt) STF 24/16 TR A 15kn AAFF 18
1x6-inch, 2x3-inch HA, 12x20mmAA. Carrying 16 LCA & 2 LCM with 1250 men.
Aircraft: 1 Walrus amphibian.
Served with RAN – as Armed Merchant Cruiser (1939-43), and Landing Ship Infantry (1943-45).

LSI - *Prince David* (1930/1943): 6,892pts(grt) STF 21/14 TR A 22kn AAFF 14
4x4-inch, 2x40mm (2pdr), 10x20mmAA. Carrying 6 LCA & 2 LCM with 550 men.
Served with RCN – as Armed Merchant Cruiser (1939-43), and Landing Ship Infantry (1943-45).

Landing Ship Medium: (1944-1945, 474 built) USN version.

LSM - *LSM-1* (1944): 808pts STF 10/6 TR A 13kn AAFF 06
2x40mm (Bofors), 2x20mm. Bow ramp.
Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks, 6 LVTs, or 9 DUKWs.

Landing Ship Medium (Rocket): (1944-1945, 52 converted) USN version.

LSM(R) - *LSM(R)-188* (1944): 914pts STF 10/6 TR A 13kn AAFF 06
1x5-inch/38, 2x40mm (Bofors), 3x20mm, 85 to 105xMk 51 Automatic Rockets in rails.

Landing Ship Tanks, Mk 1: (1943, 3 off) RN made version.

LST - *Thruster* (Jan 1943): 5,517pts STF 22/14 TR A 16kn AAFF 16
4x40mm (2pdr), 8x20mmAA. 1 crane, bow ramp. Others: *Bruiser*, & *Boxer*.
Carrying 2000tons, or 200 men, 20 tanks (13 Churchills) & 27 vehicles.

Landing Ship Tanks, Mk 2: (1942-45, 1051 completed during the war, 72 to UK under Lend-Lease)

LST - *LST-1* (Dec 1942): 3,285pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 2XLCVPs or 1xLCT on deck.
Carrying 1900tons, or 18 tanks & 27 vehicles.

LST - *LST-491* (Dec 1943): 3,606pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 6xLCVPs on deck.
Carrying 1900tons, or 18 tanks & 27 vehicles.

LST - *LST-542* (Feb 1944): 3,942pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 4xLCVPs on deck.
Carrying 18 tanks & 27 vehicles.

Landing Ship Tanks, Mk III: (1945, 61 completed) RN version.

LST - *LST-3001* (1945): 3,210pts STF 19/12 TR A 13kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramps in two parts. 5xLCA or 1xLCT5 or LCT6 on deck.
Carrying 10 tanks & 15 vehicles.

Landing Craft Tank, Mk I: (Dec 1940, 30 built) RN version.

LCT - *LCT* (1940): 567pts STF 7/5 TR A 10kn AAFF 04
2x40mm (2pdr). Bow ramp. Carrying 250 tons, or 3 (40t) tank, or 6 light tanks/vehicles.

Landing Craft Tank, Mk II: (Mar 1941, 73 built) RN version.

LCT - *LCT* (1941): 803pts STF 8/5 TR A 10kn AAFF 04
2x40mm (2pdr). Bow ramp. Carrying 250 tons, or 4 (40t) tank, or 9 trucks.

Landing Craft Tank, Mk III: (1941-1944, 235 built) RN version.

LCT - *LCT* (1941): 975pts STF 8/5 TR A 9kn AAFF 04
2x40mm (2pdr). Bow ramp. Carrying 300 tons, or 5 Heavy Tanks, or 11 Medium Tanks.

Landing Craft Tank, Mk IV: (1941-1945, 865 built) RN version.

LCT - *LCT* (1941): 892pts STF 9/6 TR A 8kn AAFF 04
2x40mm (2pdr). Bow ramp. Carrying 350 tons, 6 Heavy Tanks, or 11 Medium Tanks.

Landing Craft Tank, Mk V: (1942-45, 470 completed, ~80 used by RN under Lend-Lease) USN version.

LCT - *LCT-1* (1942): 388pts STF 7/5 TR A 16kn AAFF 04
4x20mmAA. Bow ramp. Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks or 9 trucks.

Landing Craft Tank, Mk VI: (1943-45, 960 completed, ~80 used by RN under Lend-Lease) USN version.

LCT - *LCT-501* (1943): 394pts STF 7/5 TR A 16kn AAFF 05
5x20mmAA. Bow ramp. Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks or 9 trucks.

Landing Craft Tank (Rocket): (1943-1945, 235 built) RN version.

LCT(R) - *LCT(R)* (1943): 975pts STF 8/5 TR A 9kn AAFF 04
2x40mm (2pdr), 972 or 1044x5-inch rockets. (Salvo 39-42 rockets, range 300-1000yds, 700yds width).

Landing Craft Gun (Large): (1943-1945, 25 built) RN version.

LCG(L) - *LCG(L)* (1943): 768pts STF 9/6 TR A 9kn AAFF 10
2x4-7-inch/45 IX, 2x40mm (2pdr).

Landing Craft Gun (Medium): (1943-1945, 50 built) RN version.
 LCG(M) - *LCG(M)* (1943): 405pts STF 7/5 TR A 13kn AAFF 02
 2x3.5-inch (25 pdr), 2x20mm, 2xMG. Armour 2-inch shields and protection.

Landing Craft Infantry, (Large): (1943-45, 923 completed) Allied version.
 LCI(L) - *LCI-L* (1943): 314pts STF 7/5 TR A 16kn AAFF 04
 4x20mmAA. Bow doors. Carrying 200 men.

Landing Craft Infantry, (Gunboat): (1943-45, 218 completed) Converted from LCI(L).
 LCI(G) - *LCI(G)* (1944): 345pts STF 7/5 TR A 16kn AAFF 04
 3x40mm (Bofors), 6xHMG, 10xMk 7 Rocket Launchers (each 12 off). Fire support version of LCI.

Landing Craft Infantry, (Mortar): (1945, 59 completed) Converted from LCI(L) & LCI(G).
 LCI(M) - *LCI(M)* (1945): 352pts STF 7/5 TR A 16kn
 3x4.2-inch Mortars. Mortar fire support version of LCI.

Landing Craft Infantry, (Rocket): (1945, 52 completed) Converted from LCI(L) & LCI(G).
 LCI(R) - *LCI(R)* (1945): 322pts STF 7/5 TR A 16kn
 6x5-inch Rocket Launchers. Rocket fire support version of LCI.

Landing Craft Support: (1944-45, 130 completed) Later version of the LCI(G).
 LCS(L) - *LCS(L)* (1944): 375pts STF 7/5 TR A 17kn
 1x3-inch/50, 6x40mm (Bofors), 4x20mm, 4xHMG, 10xMk 7 Rocket Launchers (each 12 off).

Motor Landing Craft (1926-38, 9 off)
 MLC (1926) 30pts STF 2/1 6kn 1xMG. Carrying 10 tons.

Landing Craft Assault (1939-45, over 2,000 built)
 LCA (1939) 15pts STF 2/1 7kn 1 or 2xMG. Carrying 36 men.

Landing Craft Control (1943-45, over 99 built)
 LCC (1943) 45pts STF 2/1 13kn 3xHMG. Crew only.

Landing Craft Mechanised (1940-45, over 11,300 built) Mks I, IV & V RN origin. Mks II, III & VI USN origin.
 LCM Mk I (1940) 52pts STF 2/1 7kn 1xMG. Carrying 1 Medium Tank, 80 men or 26 tons.
 LCM Mk II (1942) 39pts STF 2/1 7kn 2xMG. Carrying 1 Medium Tank, 55 men or 27 tons.
 LCM Mk III (1942) 35pts STF 2/1 7kn 2xMG. Carrying 1 Medium Tank, 60 men or 30 tons.
 LCM Mk IV (1943) 52pts STF 2/1 7kn 1xMG. Carrying 1 Medium Tank, 100 men or 26 tons.
 LCM Mk V (1943) 35pts STF 2/1 7kn 1xMG. Carrying 1 Medium Tank, 100 men or 26 tons.
 LCM Mk VI (1943) 52pts STF 2/1 9kn 2xMG. Carrying 1 Medium Tank, 75 men or 35 tons.

Landing Craft Personnel (1941-45, over 4,800 built)
 LCP(L) (1941) 10pts STF 2/1 8kn 2xMG. Carrying 36 men or 4 tons.
 LCP(R) (1942) 10pts STF 2/1 8kn 2xMG. Carrying 36 men or 4 tons. Ramp version.

Landing Craft Vehicle (1941-43, over 2,366 built)
 LCV (1941) 12pts STF 2/1 9kn 1xMG. Carrying 1 light gun & 1 ton truck with 12 crew,
 or 36 men or 5 tons. With bow ramp.

Landing Craft Vehicle & Personnel (1942-45, over 23,000 built)
 LCV (Nov 1942) 12pts STF 2/1 9kn 2xMG. Carrying 1 light gun & 1 ton truck with 12 crew,
 or 36 men or 4 tons. With bow ramp.

BRITISH MERCHANT VESSELS:

Empire class

MV - *Empire Highway* (Jun 1941): 7,061pts(grt) STF 23/15 TR A 11kn AAFF 10
 1x4-inch HA, 1x3-inch AA, 4xHMG. (Glasgow, Ministry of War Transport).
 Others: *Empire Glade*, *Empire Faith* (CAM).

MV/SS - *Empire Elaine* (Nov 1942): 7,513pts(grt) STF 23/15 TR A 11kn AAFF 10
 1x4-inch HA, 1x3-inch AA, 4xHMG. (Barrow, Ministry of War Transport). Heavy-lift type.
 Other: *Empire Charmian*. Similar but steam not diesel prop, *Empire Admiral* (+7) speed 15kn.

MV - *Empire Pickwick* (Nov 1943): 7,047pts(grt) STF 23/15 TR A 11kn AAFF 10
 1x4-inch HA, 1x3-inch AA, 4xHMG. (Tyne, Ministry of War Transport). Empire 'B' type.
 Others: *Empire Southey*, *Empire Lady*.

Commercial Cargo Ships

SS - *Kingston Hill* (Dec 1940): 7628pts(grt) STF 23/15 TR A 11kn AAFF 10
 1x4-inch HA, 1x3-inch AA, 4xHMG. (Glasgow, Putney Hill Steamship Co).
 Others: *Lulworth Hill*, *Marietta E*, & *Michael E*, *Primrose Hill* (CAMs).

Commercial Refrigerated Cargo Ships

MV - *Waimarama* (1938): 12,843pts(grt) STF 28/19 TR A 18kn AAFF 10
 1x4-inch HA, 1x3-inch AA, 4xHMG. (Belfast, Shaw, Savill & Albion Line).
 Others: Similar but less powerful diesels *Waiwera*, *Waipawa*, & *Wairangi* speed 16kn.

MV - *Empire Star* (1935): 12,656pts(grt) STF 29/19 TR A 15kn AAFF 13
 1x4-inch HA, 1x3-inch AA, 2x20mm, 5xHMG. (Belfast, Blue Star Line).
 Others: *Australia Star*, *Sydney Star*, *Wellington Star*, *Auckland Star*. Similar: *Brisbane Star*, *Melbourne Star*,
Adelaide Star, *New Zealand Star*, *Imperial Star*.

Ocean Liners

RMS - *Mauritania* (1939): 35,738pts(grt) STF 42/28 TR B 23kn AAFF 37
 2x6-inch, 3x3-inch AA, 3x40mm (2pdr), 22x20mm. (Birkenhead, Cunard Line).
 Troopship carrying 2,000 men, (up to 7,000 men max.)

DUTCH SHIP CHARACTERISTICS

LIGHT CRUISERS

Java class (2 off, 1925-26)

CL - *Java* (1925): 12,570pts STF 22/14 TR D 31kn 3/2/4/-/5 AAFF 20
 10x5.9-inch/50 Bofors, 8x40mm AA, 4xHMG. 2 floatplanes (Fokker C-VII-W) & crane.
 Up to 36 mines. Hydrophone. 2 DCR, 10 DCs.
 CL - *Sumatra* (1926): 12,570pts STF 22/14 TR D 31kn 3/2/4/-/5 AAFF 16
 10x5.9-inch/50 Bofors, 6x40mm AA, 4xHMG. 2 floatplanes (Fokker C-VII-W) & crane.
 Up to 36 mines. Hydrophone. 2 DCR, 10 DCs.

De Ruyter class (1 off)

CL - *De Ruyter* (1936): 12,842pts STF 24/16 TR D 32kn 3/2/4/-/2 AAFF 28
 7x5.9-inch/50 Bofors, 10x40mm AA, 8xHMG. 2 floatplanes (Fokker C-XI-W), 1 catapult.

Tromp class (2 off)

CL - *Tromp* (1938): 8,577pts STF 19/12 TR D 32kn 2/1/1/-/1 AAFF 20
 6x5.9-inch/50 Bofors, 8x40mm AA, 4xHMG, 6x21-inch TT. 1 floatplane (Fokker C-XI-W) & crane.
 ASDIC, Hydrophone, 4 DCT, 8 DCs.

CL - *Jacob van Heemskereck* (May 1940): 8,940pts STF 19/12 TR D 32kn 2/1/1/-/1 AAFF 50
 10x4-inch AA (UK), 8x40mm AA, 4x20mm. ASDIC, 2 DCR, 10 DCs. [completed in Britain]

DESTROYERS

Admiralen class (8 off, 1928-29) completed as 2 batches of 4 DD.

DD - *Van Ghent* (1928): 1974pts STF 13/9 TR C 36kn Hydrophones AAFF 10
 4x4.7-inch/50 Mk 4, 2x3-inch AA, 4xHMG, 6x21-inch TT. Up to 24 mines. 2 DCR, 10 DC.
 Others: *Evertsen*, *Kortenaer* & *Piet Hein*. 1 floatplane (Fokker C-VII-W) & crane.

DD - *Van Galen* (1929): 1974pts STF 13/9 TR C 36kn Hydrophones AAFF 15
 4x4.7-inch/50 Mk 5, 1x3-inch AA, 4x40mm, 4xHMG, 6x21-inch TT. Up to 24 mines. 2 DCR, 10 DC.
 Others: *Witte de With*, *Banckert* & *Van Nes*. 1 floatplane (Fokker C-VII-W) & crane.

Isaac Sweers (1 off) completed in Britain.

DD - *Isaac Sweers* (May 1941): 2442pts STF 15/10 TR C 37kn ASDIC AAFF 34
 6x4-inch XVI QF, 4x40mm, 8xHMG, 8x21-inch TT. Up to 24 mines. 2 DCR, 10 DC.

Dutch N class (2 off, 1942) ex-RN N class destroyers

DD - *Van Galen* (1942): 2700pts STF 15/10 TR C 36kn ASDIC AAFF 29
 6x4.7-inch/45 XII, 1x4-inch/45 V, 4x20mmAA, 4xHMG, 5x21-inch TT. 1 DCR, 2 DCT, 45 DC.
 Upgrade: (1942) HMG removed. Now 8x20mmAA, AAFF 33. (1943) 110 DCs.
 Other: Dutch N class (1942): *Tjerk Hidde*.

MINELAYERS

Prinz van Oranje class (2 off, 1932)

Prinz van Oranje (1932): 1291pts (grt) STF 12/8 TR B 15kn AAFF 12
 2x3-inch AA, 2x40mm, 2xHMG, 2x21-inch TT. Up to 150 mines. [lost off Tarakhan, Jan 1942].
 Other: *Gouden Leeuw* (1932). [lost off Surabaya, Jan 1942].

SUBMARINES

K.VII (1 off)

SM - *K.VIII* (1922): 958pts STF 8/5 TR B 15kn, 9kn (submerged) Test depth 132ft
 Submerged: 6x18-inch TT (2 bow, 2 aft, 2 external midships). Surface: 1x3.4-inch (88mm), 1xHMG. AAFF 04
 Radio, hydrophones. Crash dive 40 sec. 3,500nm@13kn surface. 13nm@8kn submerged.

K.VIII class (3 off, 1923)

SM - *K.VIII* (1923): 1068pts STF 9/6 TR C 15kn, 9kn (submerged) Test depth 132ft
Submerged: 4x18-inch TT (2 bow, 2 aft). Surface: 1x3.4-inch (88mm), 1xHMG. AAFP 04
Radio, hydrophones. Crash dive 40 sec. 3,500nm@11kn surface. 12nm@8.5kn submerged.
Others: *K.IX* & *K.X*. [(1943) *K.IX* used for training in Australia]

K.XI class (3 off, 1924-25)

SM - *K.XI* (1924): 1222pts STF 9/6 TR C 15kn, 8kn (submerged) Test depth 200ft
Submerged: 2x21-inch TT (bow) with 4 TTs, 4x18-inch TT (2 bow, 2 aft) with 8 TTs.
Surface: 1x3.4-inch (88mm), 1xHMG. AAFP 04
Radio, hydrophones. Crash dive 40 sec. 3,500nm@15kn surface. 13nm@8kn submerged.
Others: *K.XII* & *K.XIII*.

O.9 class (3 off)

SM - *O.9* (1926): 970pts STF 8/5 TR B 12kn, 8kn (submerged) Test depth 330ft
Submerged: 2x21-inch TT (bow) with 4 TTs, 3x18-inch TT (2 bow, 1 aft) with 6 TTs.
Surface: 1x3.4-inch (88mm), 1xHMG. AAFP 04
Radio, hydrophones. Crash dive 30 sec. 3,500nm@8kn surface. 11nm@7.5kn submerged.
Others: *O.10* & *O.11* (1926).

O.12 class (4 off, 1931-32)

SM - *O.12* (1931): 1056pts STF 8/5 TR B 15kn, 8kn (submerged) Test depth 330ft
Submerged: 5x21-inch TT (4 bow, 1 aft). Surface: 2x40mm (disappearing mounts), 1xHMG. AAFP 03
Radio, hydrophones. Crash dive 30 sec. 3,500nm@8kn surface. 11nm@7.5kn submerged.
Others: *O.13*, *O.14* & *O.15*.

K.XIV class (3 off, 1932-33)

SM - *K.XIV* (1932): 1536pts STF 10/7 TR C 17kn, 9kn (submerged) Test depth 264ft
Submerged: 8x21-inch TT (4 bow, 2 aft, 2 external midships) with 14 TTs.
Surface: 1x3.4-inch (88mm), 2x40mm (disappearing mounts). AAFP 05
Radio, hydrophones. Crash dive 30 sec. 3,500nm@11kn surface. 26nm@8.5kn submerged.
Others: *K.XV* & *K.XVI*.

O.16 (1 off)

SM - *O.16* (1936): 1755pts STF 11/7 TR C 18kn, 9kn (submerged) Test depth 264ft
Submerged: 8x21-inch TT (4 bow, 2 aft, 2 external midships) with 14 TTs.
Surface: 1x3.4-inch (88mm), 2x40mm (disappearing mounts). AAFP 05
Radio, hydrophones. Crash dive 30 sec.

O.19 class (2 off)

SM - *O.19* (1939): 2304pts STF 11/7 TR C 19kn, 9kn (submerged) Test depth 330ft
Submerged: 8x21-inch TT (4 bow, 2 aft, 2 external midships) with 14 TTs.
Surface: 1x3.4-inch (88mm), 2x40mm (disappearing mounts). Up to 40 mines (in 20 tubes). AAFP 05
Radio, hydrophones. Crash dive 30 sec. Other: *O.20* (1939).

O.21 class (4 off, 1940-41) completed in Britain. Additional 3 boats completed separately by Germany.

SM - *O.21* (1940): 1779pts STF 11/7 TR C 19kn, 9kn (submerged) Test depth 330ft
Submerged: 8x21-inch TT (4 bow, 2 aft, 2 external midships) with 14 TTs.
Surface: 1x3.4-inch (88mm), 2x40mm (disappearing mounts). Up to 40 mines (in 20 tubes). AAFP 05
Radio, hydrophones. Crash dive 30 sec. Other: *O.22*, *O.23* & *O.24*. (1941).

Foreign submarines in Dutch service: (1942) 1x'U' class (British). (1943) 1x'S' class (British), 2x'T' class (British).

FRENCH SHIP CHARACTERISTICS (MARINE NATIONALE / LA ROYALE)

BATTLESHIPS

BB - <i>Bretagne</i> (1915):	33,466pts	STF 24/16	TR E	20kn	11/2/14/7/13	AAFF 36
10x13.4-inch/45 M1912, 14x5.5-inch/40 M1923, 8x3-inch/50 AA, 12xMG.						2 aircraft, 1 catapult.
Other: <i>Provence</i> (1915).						
BB - <i>Lorraine</i> (1916):	32,766pts	STF 24/16	TR E	20kn	11/2/14/7/13	AAFF 52
10x13.4-inch/45 M1912, 14x5.5-inch/40 M1923, 8x4-inch/45 AA, 8x37mmAA, 12xMG.						2 aircraft, 1 catapult.
BB - <i>Dunkerque</i> (1937):	37,310pts	STF 31/20	TR F	29kn	9/5/13/5/11	AAFF 96
8x13-inch/50 M1931, 16x5.1-inch/45 M1935, 8x37mmAA, 32xMG.						2 aircraft (Loire 130 FP), 1 catapult.
Other: <i>Strasbourg</i> (1938).						
BB - <i>Richelieu</i> (1939):	52,130pts	STF 36/23	TR G	30kn	13/7/17/5/13	AAFF 96
8x15-inch/45 M1935, 9x6-inch/55 M1930, 12x3.9-inch/45 M1930, 16x37mmAA, 28xMG.						4 a/c (Loire), 2 cat.
US Upgrade: (1943) 8x15-inch, 9x6-inch, 12x3.9-inch, 56x40mm (Bofors), 48x20mmAA.						AAFF 196.
Other: <i>Jean Bart</i> (not commissioned until 1946, fought partially complete at Casablanca, Nov 1942).						

AIRCRAFT CARRIER

CV - <i>Bearn</i> (1927):	29,722pts	STF 33/22	TR D	20kn	3/1-3/2/-/-	AAFF 46
8x6.1-inch/50 M1920, 6x3.9-inch M1927, 8x37mmAA, 12xHMG.						28 a/c normal, (32 a/c max)
2 hangars (one wksp/store), deck, 3 lifts, crane for SPs. Air Ops 28 12/6 9 CV [6-0/1/1 Flat Top 11 4/2 3 CV]						

CRUISERS

CA - <i>Duquesne</i> (1928):	18,314pts	STF 27/18	TR D	33kn	-/1/1/-/1	AAFF 52
8x8-inch/50 M1924, 8x3-inch/50, 8x37mmAA, 12xMG, 6x21-inch TT.						1 aircraft, 1 catapult.
Other: <i>Tourville</i> (1928) same as <i>Duquesne</i> .						
CA - <i>Suffren</i> (1930):	18,850pts	STF 28/18	TR D	32kn	2/1/2/-/-	AAFF 52
8x8-inch/50 M1924, 8x3-inch/50, 8x37mmAA, 12xMG, 12x21-inch TT.						2 aircraft, 1 catapult.
Other: <i>Tourville</i> (1928) same as <i>Duquesne</i> .						
CA - <i>Colbert</i> (1931):	18,850pts	STF 28/18	TR D	32kn	2/1/2/-/-	AAFF 52
8x8-inch/50 M1924, 8x3-inch/50, 8x37mmAA, 12xMG, 6x21-inch TT.						2 aircraft, 1 catapult.
Others: <i>Foch</i> (1931), & <i>Dupleix</i> (1932) same as <i>Colbert</i> .						
CL - <i>Duguay-Trouin</i> (1926):	13,780pts	STF 26/17	TR D	33kn	-/1/1/-/1	AAFF 16
8x6-inch/55 M1930, 4x3-inch/50, 4xMG, 12x21-inch TT.						2 aircraft, 1 catapult.
Others: <i>Lamotte-Picquet</i> (1926), & <i>Primauguet</i> (1926).						
CL - <i>Georges Leygues</i> (1937):	14,400pts	STF 26/17	TR D	31kn	4/2/4/-/4	AAFF 52
9x6-inch/55 M1930, 8x3-inch/50, 8x37mmAA, 12xMG, 4x21-inch TT.						2 aircraft, 1 catapult.
Also: <i>La Galissonniere</i> (1935), <i>Jean de Vienne</i> (1937), <i>Gloire</i> (1937), <i>Marseillaise</i> (1937), & <i>Montcalm</i> (1937).						

DESTROYERS & ESCORTS

L'Adroit class (14 off, 1928-31) Destroyers

DD - <i>L'Adroit</i> (1929):	2070pts	STF 15/10	TR C	33kn	ASDIC	AAFF 06
4x5.1-inch/40 M1924, 2x37mmAA, 2xMG, 6x21-inch TT.						2 DCR, 2 DCT, 22 DC.
Others: <i>L'Aleçon</i> , <i>Le Fortune</i> , <i>Le Mars</i> , <i>La Palme</i> , <i>La Railleuse</i> , <i>Basque</i> , <i>Bordelais</i> , <i>Boulonnais</i> , <i>Brestois</i> , <i>Forbin</i> , <i>Foudroyant</i> , <i>Fougueux</i> , & <i>Frondeur</i> .						

Le Fantasque class (6 off, 1935-36) Destroyers

DD - <i>Le Fantasque</i> (1936):	4086pts	STF 19/12	TR C	37kn	ASDIC	AAFF 12
5x5.5-inch/50 M1934, 4x37mmAA, 4xMG, 9x21-inch TT. Up to 40 mines.						2 DCR, 28 DC.
Others: <i>L'Audacieux</i> , <i>Le Malin</i> , <i>Le Terrible</i> , <i>Le Triomphant</i> , & <i>L'Indomptable</i> .						

Mogador class (2 off, commissioned 1938-39) Destroyers

DD - <i>Mogador</i> (1938):	4496pts	STF 20/13	TR C	39kn	ASDIC	AAFF 16
8x5.5-inch/50 M1934, 6x37mmAA, 4xMG, 10x21-inch TT. Up to 40 mines.						2 DCR, 32 DC.
Other: <i>Volta</i> (1938/39). Other ships in class cancelled.						

Mogador class (8 off, commissioned 1939-40) Destroyers

DD - <i>Le Hardy</i> (1939):	2700pts	STF 17/11	TR C	37kn	ASDIC	AAFF 08
6x5.1-inch/40 M1924, 2x37mmAA, 4xMG, 7x21-inch TT.						1 DCR, 8 DC.
Others: <i>Foudroyant</i> , <i>Mameluke</i> , <i>Casque</i> , <i>L'Adroit</i> , <i>Le Cyclone</i> , <i>Siroco</i> , & <i>Bison</i> . Other ships in class cancelled.						

Elan class (13 off, 1939-40) 2nd class Sloops.

<i>Elan</i> (1939):	945pts	STF 12/8	TR B	20kn	ASDIC	AAFF 08
1x3.9-inch/45, 2x37mmAA, 2xMG, 6x21-inch TT.						1 DCR, 2 DCT, & DC.
Others: including <i>Cmdt Duboc</i> , <i>Cmdt Domine</i> , & <i>La Curieuse</i> , (used by the Free French Navy).						

GREEK SHIP CHARACTERISTICS (NAUTIKO HELLENON)

PRE-DREADNOUGHT BATTLESHIPS

BB -	<i>Kilkis</i> (1908/14):	18,907pts	STF 17/11	TR D	17kn	9/3/12/7/9	AAFF 50
	4x12-inch/45 Mk5, 8x8-inch/45 Mk6, 8x7-inch/45 Mk2, 12x3-inch/50, 6x47mm, 2x37mm, 2x21-inch TT. From 1932 deployed as training ship / mobile battery. Two cage masts fitted. Ex-Mississippi USN.						
						[sunk 23 Apr 1941]	
BB -	<i>Lemnos</i> (1908/14):	18,907pts	STF 17/11	TR D	17kn	9/3/12/7/9	AAFF 50
	4x12-inch/45 Mk5, 8x8-inch/45 Mk6, 8x7-inch/45 Mk2, 12x3-inch/50, 6x47mm, 2x37mm, 2x21-inch TT. From 1932 deployed as training ship / mobile battery. Two cage masts fitted. Ex-Idaho USN.						
						[sunk 23 Apr 1941]	

OLD ARMoured CRUISER

CA -	<i>Giorgios Averof</i> (1911):	16,566pts	STF 20/13	TR C	23kn	8/2/8/3/7	AAFF 18
	4x9.2-inch/45, 8x7.5-inch/45, 8x3-inch (12pdr), 4x3-inch AA (Vickers), 6x36mmAA. Italian Pisa class armoured cruiser.						

OLD LIGHT CRUISER

CL -	<i>Elli</i> (1914):	2172pts	STF 14/9	TR B	18kn	2/1/-/-/-	AAFF 18
	3x6-inch/50 XVII, 2x3-inch, 3x40mmAA, 2x19-inch TT. Up to 100 mines. [sunk 15 Aug 1940]						

DESTROYERS

Niki class (2 off)

DD -	<i>Niki</i> (1906):	412pts	STF 9/6	TR B	30kn		AAFF 22
	2x3-inch (12pdr), 4x57mm (6pdr), 8xHMG, 2x18-inch TT. 1 DCR, 8 DC. Others: <i>Aspis</i> .						

Thyella class (2 off)

DD -	<i>Thyella</i> (1907):	525pts	STF 9/6	TR B	30kn		AAFF 22
	2x3-inch (12pdr), 4x57mm (6pdr), 8xHMG, 2x18-inch TT. 1 DCR, 8 DC. Others: <i>Sfendoni</i> .						

Aetos class (4 off)

DD -	<i>Aetos</i> (1911):	1600pts	STF 13/8	TR B	34kn		AAFF 22
	4x4-inch/50, 4x40mm (2pdr), 8xHMG, 6x21-inch TT. Up to 40 mines. 1 DCR, 8 DC. Update: (1942) 3x4-inch/50, 1x3-inch HA, 4x40mm (2pdr), 3x20mmAA, 3x21-inch TT. AAFF 23. Others: <i>Ierax</i> , <i>Panther</i> , & <i>Leon</i> . 1 DCR, 4 DCT, 56 DC.						

Ydra class (4 off) [Italian Freccia class]

DD -	<i>Ydra</i> (1931):	1838pts	STF 14/9	TR C	30kn	Up to 54 mines.	AAFF 22
	4x4.7-inch Ansaldo 1926, 3x40mm (2pdr), 4xHMG, 6x21-inch TT. 2 DCT, DC. Others: <i>Kountouriotis</i> , <i>Psara</i> , & <i>Spetsi</i> .						

Giorgios class (2 off) [British G class]

DD -	<i>Vasilefs Giorgios</i> (1938):	2055pts	STF 14/9	TR C	36kn	ASDIC	AAFF 28
	4x5-inch/45 SKC/34, 4x37mmAA, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 17 DC. [sunk 20 Apr 1941]						
DD -	<i>Vasilissa Olga</i> (1938):	2055pts	STF 14/9	TR C	36kn	ASDIC	AAFF 28
	4x5-inch/45 SKC/34, 4x37mmAA, 8xHMG, 8x21-inch TT. 1 DCR, 2 DCT, 17 DC. Upgrade: (1941) 3x5-inch/45 SKC/34, 1x3-inch AA, 4x20mmAA, 8xHMG, 4x21-inch TT. AAFF 28. ASDIC (Type 128), 2DCR, 4 DCT, 50 DC.						

TORPEDO BOATS & MTB

Aigli class (4 off)

TB -	<i>Aigli</i> (1913):	184pts	STF 6/4	TR B	24kn		AAFF 06
	2x57mm/45 (6pdr), 1x37mm SKC/30, 2x18-inch TT. Others: <i>Alkyoni</i> , <i>Arethousa</i> , & <i>Doris</i> .						

Kyzikos class (5 off)

TB -	<i>Kyzikos</i> (1915):	405pts	STF 8/5	TR B	28kn		AAFF 06
	1x3-inch, 1x37mm SKC/30, 2x21-inch TT. Carrying 10-12 mines. Others: <i>Kios</i> , <i>Kidonai</i> , <i>Pergamos</i> , & <i>Proussa</i> . (ex-Austro-Hungarian Tbs)						

MTB T1 (1929): Thornycroft 55ft type. 17pts (brt) STF 3/2 - 40kn 2xMG, 2x18-inch TT. Others T2. (2 off).

MTB T3 (1938): Vosper 70ft type. 32pts (brt) STF 3/2 - 40kn 1x20mm, 2x21-inch TT. Others T4-6 (4 off)

MINELAYERS & MINESWEEPERS

MMA - <i>Tenedos</i> (1906):	690pts	STF 7/4	TR A	13kn	Up to 40 mines. [sunk 23 Apr 1941]
MMA - <i>Korgialenios</i> (1916):	570pts	STF 7/5	TR A	13kn	Up to 50 mines. [sunk 23 Apr 1941]
MMA - <i>Paralos</i> (1925):	592pts	STF 7/5	TR A	13kn	Up to 52 mines. [sunk 23 Apr 1941]
MMA - <i>Phias</i> (1926):	780pts	STF 8/5	TR A	14kn	Up to 50 mines. [sunk 25 Apr 1941]
MMA - <i>Orion</i> (1919):	1060pts	STF 9/6	TR A	11kn	Up to 50 mines. [sunk 25 Apr 1941]
AMS - <i>Strymon</i> (1925):	486pts	STF 7/4	TR A	11kn	Up to 40 mines. AAFF 03.

1x37mmAA, 1xMG. Minesweeping gear also fitted. (British built, ex-trawler)
Others: *Aliakmon*, *Axios*, & *Nestos*.

SUBMARINES

Katsonis class (2 off)

SM - <i>Katsonis</i> (1927):	1162pts	STF 9/6	TR C	12kn, 8kn (submerged)	Test depth 270ft 6x21-inch TT (2 bow internal, 2 bow & 2 stern external) with 7 TTs. 1x3.9-inch/40, 2xMG. AAFF 05 Radio, hydrophones, ASDIC. Crash dive 40 sec. 1,500nm@10kn surface. 100nm@5kn submerged.
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Other: *Papamicolis* (1927). French design submarines.

Proteus class (4 off)

SM - <i>Proteus</i> (1927):	1440pts	STF 10/6	TR C	12kn, 8kn (submerged)	Test depth 270ft 8x21-inch TT (6 bow & 2 stern internal) with 10 TTs. 1x4-inch/40, 1x40mm AA. AAFF 05 Radio, hydrophones, ASDIC. Crash dive 40 sec. 1,500nm@10kn surface. 100nm@5kn submerged.
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Other: *Nirefs* (1927), *Triton* (1928), *Glafkos* (1928). French design submarines.

AUXILIARIES

AO - <i>Argo</i> (1918):	8350pts (grt)	STF 22/14	TR A	11kn	Auxiliary Tanker. Oil capacity 2200t.
AR - <i>Hifaistos</i> (1920):	3002pts	STF 20/13	TR A	11kn	AAFF 12. 4x4-inch AA. Workshops and plant fitted 1925.

Auxiliary Fleet Repair & Submarine Depot Ship.

GREEK MERCHANT VESSELS

SS - <i>Athenai</i> (1910)	2897pts (grt)	STF 17/11	TR A	10kn	Freighter.
SS - <i>Ermioni</i> (1902)	436 pts (grt)	STF 7/5	TR A	8kn	Small coaster.

YUGOSLAV SHIP CHARACTERISTICS

DESTROYERS

Dubrovnik (1 off) Flotilla Leader

DD - <i>Dubrovnik</i> (1932):	2865pts	STF 16/10	TR C	37kn	Up to 40 mines. AAFF 20 4x5.5-inch/56 Skoda, 2x3.3-inch Skoda AA, 6x40mm AA, 2xHMG, 6x21-inch TT. 2 DCR, 2 DCT, 10 DCs.
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Beograd class (3 off)

DD - <i>Beograd</i> (1939):	1785pts	STF 14/19	TR C	35kn	Up to 30 mines. AAFF 10 4x4.7-inch/46 Skoda, 4x40mm AA, 2xHMG, 6x21-inch TT. 2 DCR, 8 DCs.
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Others: *Zagreb* & *Ljubljana*.

MINE VESSELS

Malinska class (5 off) Minelayers

DD - <i>Malinska</i> (1931):	215pts	STF 4/3	TR A	11kn	Up to 40 mines. AAFF 04 1x66mm DP, 2xHMG.
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Others: *Majan*, *Mosor*, *Meljine* & *Mljet*.

SUBMARINE

SM - <i>Nebojsca</i> (1928):	1746pts	STF 10/6	TR B	15.5kn, 10kn (submerged)	Test depth 150ft 6x21-inch TT (4 bow & 2 stern) with 8 TTs. 2x4-inch/40, 2xMG. AAFF 08 Radio, hydrophones. Crash dive 40 sec. 3,800nm@10kn surface. 75nm@4kn submerged.[mod. British L-class]
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GERMAN SHIP CHARACTERISTICS

BATTLESHIPS, BATTLECRUISERS & COASTAL DEFENCE SHIPS:

Bismarck class

- BB - *Bismarck* (1940): 55,010pts STF 36/24 TR H 30kn 13/5/14/3/14 AAFF 92
8x15-inch/52 SKC/34, 12x5.9-inch/55 SKC/28, 16x4.1-inch/60 SKC/33, 16x3.7cm SKC/30, 12x2cm Flak 30.
Various radars (FuMO23, and hydrophones). 4xfloatplanes (Arado Ar196), 1 double catapult.
- BB - *Tirpitz* (1941): 56,210pts STF 36/24 TR H 30kn 13/5/14/3/14 AAFF 92
8x15-inch/52 SKC/34, 12x5.9-inch/55 SKC/28, 16x4.1-inch/60 SKC/33, 16x3.7cm SKC/30, 12x2cm Flak 30,
8x21-inch TT. Various radars (FuMO23, and hydrophones). 4xfloatplanes (Arado Ar196), 1 double catapult.
Upgrades: (1942) 24x2cm Flak. Radars upgraded. AAFF 104. (1944) TT removed. 58x2cm Flak. AAFF 138.

Pocket Battleships

- BB - *Deutschland* (1933): 19,620pts STF 27/18 TR E 28kn 3/2/3/3/3 AAFF 18
6x11-inch/52 SKC/28, 8x5.9-inch/55 SKC/28, 6x3.4-inch/78 (8.8cm), 8x21-inch TT
Various radars (FMG39G(go), and hydrophones). 2xfloatplanes (Arado Ar196), 1 double catapult.
Upgrades: (1940) 3.4-inch replaced by 6x4.1-inch/65 SKC/33, 4x3.7cm SKC/30, 10x2cm Flak 30. AAFF 36.
Renamed: *Lützow* (Jan 1940).
- BB - *Admiral Scheer* (1934): 20,680pts STF 27/18 TR E 28kn 3/2/3/3/3 AAFF 18
6x11-inch/52 SKC/28, 8x5.9-inch/55 SKC/28, 6x3.4-inch/78 (8.8cm), 8x21-inch TT.
Various radars (FMG39G(go), and hydrophones). 2xfloatplanes (Arado Ar196), 1 double catapult.
Upgrades: (1940) 3.4-inch replaced by 6x4.1-inch/65 SKC/33, 4x3.7cm SKC/30, 10x2cm Flak 30. AAFF 36.
- BB - *Admiral Graf Spee* (1936): 20,310pts STF 27/18 TR E 28kn 4/3/6/3/6 AAFF 36
6x11-inch/52 SKC/28, 8x5.9-inch/55 SKC/28, 6x4.1-inch/65 SKC/33, 4x3.7cm SKC/30, 10x2cm Flak 30,
8x21-inch TT. Various radars (FMG39G(go), and hydrophones). 1xfloatplane (He 60 a/c), 1 double catapult.
[scuttled 17 Dec 1939]

Battlecruisers

- CB - *Scharnhorst* (1939): 45,360pts STF 34/22 TR G 31kn 14/4/14/3/14 AAFF 90
9x11-inch/54 SKC/34, 12x5.9-inch/55 SKC/28, 14x4.1-inch/60 SKC/33, 16x3.7cm SKC/30, 16x2cm Flak 30,
Various radars (FuMO23, and hydrophones). 3xfloatplanes (Arado Ar196), 1 double catapult.
Upgrades: (1941) 26x2cm Flak, new radars, AAFF 100. (1943) 6x21-inch TT added, 44x2cm Flak. AAFF 118.
- CB - *Gneisenau* (1938): 45,360pts STF 34/22 TR G 31kn 14/4/14/3/14 AAFF 90
9x11-inch/54 SKC/34, 12x5.9-inch/55 SKC/28, 14x4.1-inch/60 SKC/33, 16x3.7cm SKC/30, 16x2cm Flak 30,
Various radars (FuMO23, and hydrophones). 3xfloatplanes (Arado Ar196), 1 double catapult.
Upgrades: (1941) 26x2cm Flak, new radars, AAFF 100. (1943) 6x21-inch TT added, 44x2cm Flak. AAFF 118.

Coastal Defence Ships (Pre-Dreadnoughts)

- Schleswig-Holstein* (1908): 20,160pts STF 18/12 TR D 18kn 9/2/11/9/10 AAFF 16
4x11-inch/40 SKC/40, 10x5.9-inch/45 SKC/45, 4x3.5-inch (8.8cm), 4x2cm Flak 30, 4x20-inch TT (G7u TT).
Upgrades: (1940) added 4x3.7cm. AAFF 24.
(1941) now 4x11-inch, 6x4.1-inch, 4x3.5-inch, 4x37cm, 14x2cm Flak. AAFF 52.
- Schlesien* (1908): 20,160pts STF 18/12 TR D 18kn 9/2/11/9/10 AAFF 16
4x11-inch/40 SKC/40, 10x5.9-inch/45 SKC/45, 4x3.5-inch (8.8cm), 4x2cm Flak 30, 4x20-inch TT (G7u TT).
Upgrades: (1940) added 8x20mm, AAFF 24.
(1941) now 4x11-inch, 6x4.1-inch, 4x3.5-inch, 4x37cm, 14x2cm Flak. AAFF 52.

AIRCRAFT CARRIER:

- CV - *Graf Zeppelin* (Aug 1940 ceased): 29,090pts STF 47/31 TR E 34kn 4/2-2/-/- AAFF 108
16x5.9-inch/55 SKC/28, 12x4.1-inch/60 SKC/33, 22x3.7cmAA, 28x2cm Flak. 2" flight deck, 2" hangar deck.
2 hangers, 3 lifts, 2 catapults. 42 a/c normal, (54 a/c max) – Aircraft 12xBf 109 (FF) & 30xJu 87 (DB).
Air Ops 24 24/10 18 CV [8-2/4/2 Flat Top 14 8/3 6 CV]

HEAVY CRUISERS:

- CA - *Admiral Hipper* (1939): 23,800pts STF 29/19 TR D 32kn 3/2/4/-/6 AAFF 68
8x8-inch/60, 12x4.1-inch/65, 12x3.7cmAA, 8x2cm Flak, 12x21-inch TT. Radars. 3 a/c (Ar 196), 1 catapult.
Up to 96 mines. Upgrade (1943) 8x8-inch, 12x4.1-inch, 8x3.7cm, 28x2cm Flak, 12x21-inch TT. AAFF 80.
- CA - *Blücher* (1939): 23,800pts STF 29/19 TR D 32kn 3/2/4/-/6 AAFF 68
8x8-inch/60, 12x4.1-inch/65, 12x3.7cmAA, 8x2cm Flak, 12x21-inch TT. Radars. 3 a/c (Ar 196), 1 catapult.
[sunk 9 Apr 1940]
- CA - *Prinz Eugen* (1940): 24,940pts STF 30/20 TR D 32kn 3/2/4/-/6 AAFF 68
8x8-inch/60, 12x4.1-inch/65, 12x3.7cmAA, 8x2cm Flak, 12x21-inch TT. Radars. 3 a/c (Ar 196), 1 catapult.
Up to 96 mines. Upgrade (1943) 8x8-inch, 12x4.1-inch, 8x3.7cm, 28x2cm Flak, 12x21-inch TT. AAFF 80.

LIGHT CRUISERS:

CL - *Emden* (1925): 11,030pts STF 22/15 TR C 29kn 2/2/1/-/4 AAFF 35
8x5.9-inch/45 C16, 3x3.5-inch (8.8cm), 4x3.7cmAA, 18x2cm Flak30, 4x21-inch TT. Radar. Up to 120 mines.
Upgrade (1942) 8x5.9-inch/48 KC/36 HA, 3x3.5-inch, 4x3.7cm, 18x2cm, 2x21-inch TT. AAFF 59.

Königsberg class (1929-30, 3 off)

CL - *Königsberg* (1929): 12,430pts STF 25/16 TR C 32kn 2/2/2/-/4 AAFF 42
9x5.9-inch/60 SKC/25, 6x3.5-inch (8.8cm), 8x3.7cmAA, 8x2cm Flak30, 12x21-inch TT. Up to 120 mines.
Various radars. 1 a/c (Ar 196 + spare in boxes), 1 catapult. [sunk 10 Apr 1940]

CL - *Karlsruhe* (1929): 12,430pts STF 25/16 TR C 32kn 2/2/2/-/4 AAFF 42
9x5.9-inch/60 SKC/25, 6x3.5-inch (8.8cm), 8x3.7cmAA, 8x2cm Flak30, 12x21-inch TT. Up to 120 mines.
Various radars. 1 a/c (Ar 196 + spare in boxes), 1 catapult. [sunk 9 Apr 1940]

CL - *Köln* (1930): 12,430pts STF 25/16 TR C 32kn 2/2/2/-/4 AAFF 42
9x5.9-inch/60 SKC/25, 6x3.5-inch (8.8cm), 8x3.7cmAA, 8x2cm Flak30, 12x21-inch TT. Up to 120 mines.
Various radars. Upgrade (1942) now, 28x2cm Flak. AAFF 52. 1 a/c (Ar 196 + spare in boxes), 1 catapult.

Leipzig class (1931 & 1935, 2 off)

CL - *Leipzig* (1931): 13,290pts STF 26/17 TR C 32kn 2/1/3/-/4 AAFF 39
9x5.9-inch/60 SKC/25, 6x3.5-inch (8.8cm), 12x21-inch TT. Up to 120 mines. 1 a/c, 1 catapult.
Upgrades: (1941) Add 8x3.7cmAA, 14x2cm Flak. Various radars. AAFF 69. (Ar 196 + spare in boxes)
(1942) aircraft removed. 6x21-inch TT removed.

CL - *Nürnberg* (1935): 14,670pts STF 26/17 TR C 32kn 2/1/3/-/4 AAFF 75
9x5.9-inch/60 SKC/25, 8x3.5-inch (8.8cm), 8x3.7cmAA, 8x2cm Flak, 12x21-inch TT. 1 a/c, 1 catapult.
(Ar 196 + spare in boxes). Up to 120 mines.
Upgrade: (1942) aircraft removed. 6x21-inch TT removed. Now 16x2cm Flak. Various radars. AAFF 83.

DESTROYERS & TORPEDO BOATS:

Maas class (4 off)

DD - *Z1 - Maas* (1937): 3388pts STF 17/11 TR C 36kn Up to 60 mines. AAFF 29
5x5-inch/45 SKC/34, 4x3.7cmAA, 6x2cmAA, 8x21-inch TT. Hydrophones. 6 DCR, 4 DCT, & 64 DCs.
Others: (1937) *Z2 - Thiele*, *Z3 - Shultz*, & *Z4 - Beltzen*. (S-Gerat)

Z5 class (12 off)

DD - *Z5 - Jacobi* (1937): 3460pts STF 17/11 TR C 36kn Up to 60 mines. AAFF 29
5x5-inch/45 SKC/34, 4x3.7cmAA, 6x2cmAA, 8x21-inch TT. Hydrophones. 6 DCR, 4 DCT, & 64 DCs.
Others: (1937-39) *Z6 - Riedel*, *Z7 - Schoemann*, *Z8 - Heinemann*, *Z9 - Zenker*, *Z10 - Lody*, *Z11 - Armin*,
Z12 - Giese, *Z13 - Koellner*, *Z14 - Ihn*, *Z15 - Steinbrinck*, & *Z16 - Eckoldt*.

Z17 class (6 off)

DD - *Z17 - v Roeder* (1938): 3675pts STF 18/11 TR C 36kn Up to 60 mines. AAFF 29
5x5-inch/45 SKC/34, 4x3.7cmAA, 6x2cmAA, 8x21-inch TT. Hydrophones. 6 DCR, 4 DCT, & 64 DCs.
Others: (1938-39) *Z18 - Lüdemann*, *Z19 - Künne*, *Z20 - Galster*, *Z21 - Heidkamp*, *Z22 - Anton Schmitt*.

Z23 class (8 off)

DD - *Z23* (1940): 4050pts STF 18/12 TR C 36kn Up to 60 mines. AAFF 30
4x5-inch/45 SKC/34, 4x3.7cmAA, 10x2cmAA, 8x21-inch TT. 6 DCR, 4 DCT, & 64 DCs.
Hydrophones GHG, S-Gerat sonar. Radar FuMO24/25. Others: (1940-41) *Z24* to *Z30*. No names allocated.

Z31 class (7 off completed)

DD - *Z31* (1942): 4050pts STF 18/12 TR C 36kn Up to 60 mines. AAFF 32
4x5-inch/45 SKC/34, 4x3.7cmAA, 10x2cmAA, 8x21-inch TT. 6 DCR, 4 DCT, & 64 DCs.
Hydrophones GHG, S-Gerat sonar. Radar FuMO24/25. Others: (1942-43) *Z32*, *Z33*, *Z34*, *Z37*, *Z38*, & *Z39*.

Z35 class (3 off completed)

DD - *Z35* (1943): 3840pts STF 18/12 TR C 36kn Up to 76 mines. AAFF 38
5x5-inch/45 SKC/34, 4x3.7cmAA, 15x2cmAA, 8x21-inch TT (G7a torps.) 6 DCR, 4 DCT, & 64 DCs.
Hydrophones GHG, S-Gerat sonar. Radar FuMO24/25. Others: (1943-44) *Z35*, *Z36*, & *Z43*.

Raubtier class (6 off)

TB - *Wolf* (1928): 1422pts STF 13/8 TR B 34kn Up to 30 mines. AAFF 13
3x4.1-inch/45 SKC/32, 4x2cmAA, 6x21-inch TT.
Others: (1928-29) *Litis*, *Jaguar*, *Leopard*, *Luchs*, & *Tiger*.

Raubvogel class (6 off)

TB - *Möwe* (1926): 1407pts STF 12/8 TR B 34kn Up to 30 mines. AAFF 13
3x4.1-inch/45 SKC/32, 4x2cmAA, 6x21-inch TT.
Others: (1926-28) *Falke*, *Greif*, *Kondor*, *Albatros*, & *Seeadler*.

T1 class (12 off)
 TB - *T1* (Dec 1939): 1310pts STF 12/8 TR B 35kn 30 to 60 mines. AAFF 07
 1x4.1-inch/45 SKC/32, 1x3.7cmAA, 2x2cmAA, 6x21-inch TT.
 Others: (Jan - Aug 1940) *T2* to *T12*.

T13 class (9 off)
 TB - *T13* (May 1941): 1332pts STF 12/8 TR B 35kn 30 to 60 mines. AAFF 07
 1x4.1-inch/45 SKC/32, 1x3.7cmAA, 2x2cmAA, 6x21-inch TT.
 Others: (Jun 1941 - Jul 1942) *T14* to *T21*.

T22 class (15 off)
 TB - *T22* (Feb 1942): 1941pts STF 14/9 TR B 33kn 30 to 60 mines. AAFF 24
 4x4.1-inch/45 SKC/32, 4x3.7cmAA, 4x2cmAA, 6x21-inch TT.
 Hydrophones GHG, S-Gerat sonar. Radar FuMO24/25. 4 DCT, & DCs.
 Others: (Jun 1942 - Dec 1944) *T23* to *T36*.

MINE WARFARE VESSELS:

M1935 class Minesweepers (69 off)
 MS - *M1* (1937): 1040pts STF 9/6 TR B 18kn AAFF 12
 2x4.1-inch/45 SKC/32, 2x3.7cmAA, 2x2cmAA.
 Others: (1937-41) *M2* to *M69*.

M1940 class Minesweepers (141 off)
 MS - *M70* (1941): 828pts STF 9/6 TR B 16kn AAFF 15
 1x4.1-inch/45 SKC/32, 1x3.7cmAA, 8x2cmAA.
 Others: (1941-44) *M71* to *M196*.

M1943 class Minesweepers (18 off)
 MS - *M197* (1943): 886pts STF 9/6 TR B 16kn AAFF 18
 2x4.1-inch/45 SKC/32, 2x3.7cmAA, 8x2cmAA.
 Others: (1943-45) *M198* to *M214*.

R-Boats Patrol Craft / Minesweepers (16 off)
R1 (1929): 90pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 6 mines. DCs. Others: (1929-34) *R2* to *R16*, (16 off).
R17 (1935): 172pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs. Others: (1934-38) *R18* to *R24*, (8 off).
R25 (1938): 165pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs. Others: (1938-39) *R26* to *R40*, (16 off).
R41 (1939): 188pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs. Others: (1939-43) *R42* to *R129*, (88 off).
R130 (1943): 225pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs. Others: (1943-44) *R131* to *R150*, (20 off).
R151 (1940): 188pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs. Others: (1940-43) *R152* to *R217*, (66 off).
R218 (1943): 188pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA. Up to 12 mines. DCs.
 Others: (1943-45) *R219* to *R270*, *R272* to *R276*, *R288* to *R290* (60 completed).
R301 (1942): 240pts STF 2/1 TR A 20kn AAFF 10
 1x3.7cmAA, 8x2cmAA, 2x21-inch TT. Up to 12 mines. DCs. Others: (1942-45) *R302* to *R312*, (12 off).

MOTOR TORPEDO BOATS (MTB / PT)

S-101 class boats (1940-45, 81 off) *S-38B*, *S-101* to *S-150*, *S-167* to *S-305*. Fast Attack Craft.
S-101 (1940): 158pts STF 5/3 TR A 42kn Schnellboot, 1x3.7cmAA, 3x2cmAA, 2x21-inch TT. AAFF 05.

AUXILIARY CRUISERS

AMC - *Orion* (1930): 7,021pts(grt) STF 24/16 TR A 15kn AAFF 11
 6x5.9-inch/45 SKL45, 1x3-inch, 2x3.7cmAA, 4x2cmAA, 6x21-inch TT. 1 a/c (Ar 196).
 Up to 228 mines. Designation: HSK-1, 'Raider A'. [sunk 4 May 1945]
 AMC - *Atlantis* (1937): 7,862pts(grt) STF 25/16 TR A 17kn AAFF 15
 6x5.9-inch/45 SKL45, 1x3-inch, 4x3.7cmAA, 4x2cmAA, 4x21-inch TT. 2 a/c (He 114C).
 Up to 93 mines. Designation: HSK-2, 'Raider C'. [sunk 22 Nov 1941]
 AMC - *Widder/Neumark* (1930): 7,851pts(grt) STF 24/16 TR A 14kn AAFF 11
 6x5.9-inch/45 SKL45, 1x3-inch, 2x3.7cmAA, 4x2cmAA, 4x21-inch TT. 2 a/c (He 114B).
 Up to 92 mines. Designation: HSK-3, 'Raider D'.

AMC - *Thor* (1938): 3,862pts(grt) STF 20/13 TR A 17kn AAFF 16
6x5.9-inch/45 SKL45, 4x3.7cmAA, 8x2cmAA, 4x21-inch TT. 1 a/c (Ar 196).
Designation: HSK-4, 'Raider E'. [sunk 30 Nov 1942]

AMC - *Pinguin* (1936): 11,814pts STF 25/16 TR A 17kn AAFF 11
6x5.9-inch/45 SKL45, 1x3-inch, 2x3.7cmAA, 4x2cmAA, 2x21-inch TT. 1 a/c (He 114C or Ar 196).
Up to 300 mines. Designation: HSK-5, 'Raider F'. [sunk 8 May 1941]

AMC - *Stier* (1936): 4,778pts(grt) STF 22/14 TR A 14kn AAFF 11
6x5.9-inch/45 SKL45, 2x3-inch, 2x3.7cmAA, 4x2cmAA, 2x21-inch TT. 2 a/c (Ar 231).
Designation: HSK-6, 'Raider J'. [sunk 27 Sep 1942]

AMC - *Komet* (1937): 3,287pts(grt) STF 18/12 TR A 16kn AAFF 11
6x5.9-inch/45 SKL45, 1x3-inch, 1x3.7cmAA, 4x2cmAA, 6x21-inch TT. 2 a/c (Ar 196).
Up to 30 mines. Designation: HSK-7, 'Raider B'. [sunk 14 Oct 1942]

AMC - *Kormorant* (1938): 8,736pts(grt) STF 23/15 TR A 18kn AAFF 09
6x5.9-inch/45 SKC45, 2x3.7cmAA, 5x2cmAA, 6x21-inch TT (24 torpedoes carried). 2 a/c (Ar 196).
Up to 390 mines. Designation: HSK-8, 'Raider G'. [sunk 19 Nov 1941]

AMC - *Michel* (1941): 4,740pts(grt) STF 21/14 TR A 16kn AAFF 19
6x5.9-inch/45 SKC45, 1x4.1-inch/45, 4x3.7cmAA, 8x2cmAA, 6x21-inch TT. 2 a/c (Ar 196).
1 x torpedo boat (LS 4 *Esau*). Designation: HSK-9, 'Raider H'. [sunk 17 Oct 1943]

AMC - *Coronel* (1938): 8,382pts(grt) STF 22/14 TR A 16kn AAFF 18
6x5.9-inch/45 TK15, 6x40mm (Bofors), 6x2cmAA 2 a/c (not installed).
Ex-*Togo*. Renamed *Coronel* in 1942. Designation: HSK-10, 'Raider K'. 1943 Night Fighter Direction Ship.

AMC - *Hansa* (Feb 1944): 9,138pts(grt) STF 25/16 TR A 20kn AAFF 51
8x5.9-inch/45 SKC45, 1x4.1-inch, 6x3.7cmAA, 36x2cmAA. 1 a/c (not installed).
Designation: HSK-11.

SUBMARINES:

Type IA class (1936-37, 2 boats) U25 & U26.

SM - U25 (1936): 1475pts STF 10/6 TR C 17.5kn, 8kn (submerged) Test depth 492ft
6x21-inch TT (4 bow, 2 stern submerged) with 14 torpedoes. 1x4.1-inch/40 (105mm), 1x20mm AA. AAFF 04
Radio, passive/active sonar. Crash dive 30 sec. 7,900nm@10kn surface. 78nm@4kn submerged.

Type IIA class (1935, 6 boats) U1 to U6. Coastal Submarines.

SM - U1 (1935): 455pts STF 6/4 TR B 13kn, 7kn (submerged) Test depth 394ft
3x21-inch TT (3 bow) with 5 torpedoes. 1x20mm AA. AAFF 01. Upgrade: (1942) 4x20mmAA. AAFF 04
Radio, passive/active sonar. Crash dive 30 sec. 1,600nm@8kn surface. 35nm@4kn submerged.

Type IIB class (1935-36 & 1940, 20 boats) U7 to U24, & U120, U121. Coastal Submarines.

SM - U7 (1935): 494pts STF 6/4 TR B 13kn, 7kn (submerged) Test depth 394ft
3x21-inch TT (3 bow) with 5 torpedoes. 1x20mm AA. AAFF 01. Upgrade: (1942) 4x20mmAA. AAFF 04
Radio, passive/active sonar. Crash dive 30 sec. 3,100nm@8kn surface. 40nm@4kn submerged.

Type IIC class (1938-40, 8 boats) U56 to U63. Coastal Submarines.

SM - U56 (1938): 512pts STF 6/4 TR B 13kn, 7.5kn (submerged) Test depth 394ft
3x21-inch TT (3 bow) with 5 torpedoes. 1x20mm AA. AAFF 01. Upgrade: (1942) 4x20mmAA. AAFF 04
Radio, passive/active sonar. Crash dive 30 sec. 3,800nm@8kn surface. 40nm@4kn submerged.

Type IID class (1940-41, 16 boats) U137 to U152. Coastal Submarines.

SM - U137 (1940): 546pts STF 6/4 TR B 13kn, 7.5kn (submerged) Test depth 394ft
3x21-inch TT (3 bow) with 5 torpedoes. 1x20mm AA. AAFF 01. Upgrade: (1942) 4x20mmAA. AAFF 04
Radio, passive/active sonar. Crash dive 30 sec. 5,650nm@8kn surface. 56nm@4kn submerged.

Type VIIA class (1936-37, 10 boats) U27 to U36

SM - U27 (1936): 1118pts STF 9/6 TR C 17kn, 8kn (submerged) Test depth 492ft
5x21-inch TT (4 bow, 1 stern submerged) with 11 torpedoes. 1x3.4-inch/45 (88mm), 1x20mm AA. AAFF 04
Radio, passive/active sonar. (*Nibelung* or *S-Apparat*) AA upgrade (1943-44): 1x37mm, 2x20mm. AAFF 07
Crash dive 30 sec. 6,200nm@10kn surface. 94nm@4kn submerged.

Type VIIB class (1938-41, 24 boats) various numbers

SM - U45 (1938): 1286pts STF 9/6 TR C 18kn, 8kn (submerged) Test depth 492ft
5x21-inch TT (4 bow, 1 stern submerged) with 12 torpedoes. 1x3.4-inch/45 (88mm), 1x20mm AA. AAFF 04
Radio, passive/active sonar. AA upgrade (1943-44): 1x37mm, 2x20mm. AAFF 07
Crash dive 30 sec. 8,700nm@10kn, 3,850 @17kn surface. 90nm@4kn submerged.

Type VIIC & C-41 class (1940-44, 661 boats entered service) various numbers

SM - U69 (1940): 1306pts STF 9/6 TR C 17/5kn, 7.5kn (submerged) Test depth 492ft
5x21-inch TT (4 bow, 1 stern submerged) with 14 torpedoes. 1x3.4-inch/45 (88mm), 1x20mm AA. AAFF 04
Radio, passive/active sonar. AA upgrade (1943-44): 1x37mm, 2x20mm. AAFF 07
Crash dive 30 sec. 8,500nm@10kn, 3,250 @17kn surface. 130nm@2kn submerged.

Some Type VIIC submarines tested to depth 590ft.

Type VIID class (1941-42, 6 boats, minelaying submarines) U213 to U218

SM - U213 (1941): 1620pts STF 11/7 TR C 17kn, 7kn (submerged) Test depth 492ft
 5x21-inch TT (4 bow, 1 stern submerged) with 14 torpedoes. 1x3.4-inch/45 (88mm), 1x20mm AA. AAFF 04
 Radio, passive/active sonar. Or launch 15 mines (3 per TT). Total of 26 to 39 mines carried.
 Crash dive 30 sec. 11,200nm@10kn, 5,050nm@16kn surface. 127nm@2kn, 69nm@4kn submerged.

Type VIIF class (1943, 4 boats, supply submarines) U1059 to U1062

SM - U1059 (1943): 1772pts STF 11/7 TR C 17.5kn, 8kn (submerged) Test depth 492ft
 5x21-inch TT (4 bow, 1 stern submerged) with 14 torpedoes. 1x3.4-inch/45 (88mm), 1x20mm AA. AAFF 04
 Radio, passive/active sonar. Up to 25 extra torpedoes stowed for resupply of other submarines.
 Crash dive 35 sec. 14,700nm@10kn surface. 130nm@2kn submerged.

Type XB class (1944, 8 boats) U116-119 & U219, U220, U233, & U234. Ocean Minelaying/Supply Submarines.

SM - U116 (1944): 3266pts STF 13/8 TR C 16kn, 7kn (submerged) Test depth 492ft
 2x21-inch TT (2 stern), carried 15 torpedoes. 1x4.1-inch/40 (105mm), 1x37mmAA, 2x20mm AA. AAFF 04.
 Up to 66 mines in 30 tubes. Upgrade: (1943) 1x37mmAA, 4x20mmAA. AAFF 06. Snorkel added.
 Radio, passive/active sonar. Crash dive 35 sec. 18,450nm@10kn, 6,750@16kn surface.
 188nm@2kn, 93nm@4kn submerged.

Type XIV class (1941-3, 10 boats) U459-U464, & U487-U490. Ocean Tanker/Supply Submarines.

SM - U459 (1941): 2898pts STF 9/6 TR C 14kn, 6kn (submerged) Test depth 492ft
 2x37mmAA, 1x20mm AA. AAFF 05. Cargo 423 ton diesel & 4 torpedoes. Radio, passive/active sonar.
 Crash dive 35 sec. 12,350nm@10kn, 5,500@14kn surface. 120nm@2kn, 55nm@4kn submerged.
 Upgrade: (1943) 1x37mmAA, 4x20mmAA. AAFF 06. Snorkel added.

Type XXI class (1944-45, 118 boats entered service) various numbers

SM - U2501 (June 1944): 2728pts STF 11/7 TR C 15.5kn, 17.5kn (submerged) Test depth 656ft
 6x21-inch TT (6 bow submerged) with 23 torpedoes (LUT homing), or 17 torpedoes and 12 mines (3 per TT).
 TT recharge time 20mins. Radio, improved passive/active sonar (*Nibelung* or *S-Anlage*). Silent running 3.5kn.
 Masts: attack & search periscope, EW radar, echo-ranging antenna, & telescoping snorkel.

Also fitted: radar warning device (*Bali*), sonar decay (*Bold* or *Pillenwerfer*), and a fire control console capable of obtaining a fire solution for the LUT (*Lageunabhängiger*) torpedoes without visual/periscope sightings.

Crash dive 18 sec. Underwater battery endurance: 1 hour @16kn, or 74 hours@4kn.

Range: 15,500nm@10kn, 5,100nm@ 15kn surface. 365nm@5kn, 110nm@10kn submerged.

Type XXIII class (1944-45, 62 boats entered service, Small Coastal Submarines) various numbers

SM - U2321 (June 1944): 387pts STF 5/3 TR C 9.5kn, 12.5kn (submerged) Test depth 472ft
 2x21-inch TT (2 bow submerged) with only 2 torpedoes (LUT) Silent running 3.5kn.
 Radio, improved passive/active sonar Single periscope, standard sonar & telescoping snorkel.
 Snorting speed limited to 8kn. Snort time 2 to 3 hours to recharge.

Also fitted with fire control console capable of obtaining a fire solution for the LUT torpedoes.

Crash dive 9 sec. Underwater battery endurance: 1 hour @12.5kn, or 48 hours@4kn.

Range: 4,300nm@6kn, 1350@ 9.5kn surface. 175nm@4kn, 43nm@10kn submerged.

GERMAN MERCHANT SHIPS:

Dithmarschen class - Cruiser Supply Vessels (5 off)

SMS - *Dithmarschen* (Jul 1939): 10,698pts(grt) STF 29/19 TR A 20kn Supply Vessel AAFF 16
 3x5.9-inch, 2x3.7cm, 4x2cm, 8xMG. Cargo; 7933 t fuel, 972t ammunition, 790t supplies and 100t spares.

Others comm'd: *Altmarck* (1938), *Ermland* (1940), *Franken* (1943), *Nordmarck* (ex-*Westerwald* (Jan 1939).

SMS - *Altmarck* (1939): 10,698pts(grt) STF 29/19 TR A 20kn Supply Vessel AAFF 16
 3x5.9-inch, 2x3.7cm, 4x2cm, 8xMG. (renamed late 1940-41 - *Uckermark*) [exploded 40 Nov 1942]

Mediterranean & Black Sea Merchant Vessels

SMS - *Brook* (1927): 1225pts(grt) STF 11/7 TR A 10kn
 Transport [sunk 11 Jul 1942]

SMS - *Cordelia* (1921): 1357pts(grt) STF 12/8 TR A 9kn
 Grain transport [sunk 2 Dec 1941 Burgaz, Black Sea]

SMS - *Ithaca* (1922): 1773pts(grt) STF 13/8 TR A 9kn
 Munitions transport [sunk 10 Nov 1941 off Milos]

SMS - *Tilly L.M. Russ* (1926): 1626pts(grt) STF 12/8 TR A 10kn
 Munitions transport [sunk 11 June 1941 off Benghazi]

ITALIAN SHIP CHARACTERISTICS

BATTLESHIPS & COASTAL DEFENCE SHIPS:

BB - <i>Andrea Doria</i> (1916/40):	35,434pts	STF 28/19	TR E	26kn	10/5/11/5/12	AAFF 82
10x12.6-inch/44, 12x5.3-inch/45, 10x90mm, 19x37mmAA, 14x20mmAA.						
BB - <i>Caio Duilio</i> (1915/40):	35,434pts	STF 28/19	TR E	26kn	10/5/11/5/12	AAFF 82
10x12.6-inch/44, 12x5.3-inch/45, 10x90mm, 19x37mmAA, 14x20mmAA.						
BB - <i>Vittorio Veneto</i> (1940):	53,414pts	STF 39/25	TR G	30kn	11/6/15/7/10	AAFF 108
9x15-inch/50, 12x6-inch/55, 4x4.7-inch/40, 12x90mm, 20x37mmAA, 16x20mmAA. 3 float planes						
BB - <i>Littorio</i> (1940) aka <i>Italia</i> :	53,414pts	STF 39/25	TR G	30kn	11/6/15/7/10	AAFF 108
9x15-inch/50, 12x6-inch/55, 4x4.7-inch/40, 12x90mm, 20x37mmAA, 16x20mmAA. 3 floatplanes						
BB - <i>Roma</i> (1942):	54,430pts	STF 39/25	TR G	30kn	11/6/15/7/10	AAFF 116
9x15-inch/50, 12x6-inch/55, 4x4.7-inch/40, 12x90mm, 20x37mmAA, 20x20mmAA. 3 floatplanes						
BB - <i>Conte di Cavour</i> (1915/37):	39,210pts	STF 30/20	TR E	27kn	11/6/11/7/11	AAFF 108
10x12.6-inch/44, 12x4.7-inch/50, 12x3.9-inch/47 (100mm), 12x37mmAA, 12x20mmAA.						
BB - <i>Giulio Cesare</i> (1914/37):	39,210pts	STF 30/20	TR E	27kn	11/6/11/7/11	AAFF 108
10x12.6-inch/44, 12x4.7-inch/50, 12x3.9-inch/47 (100mm), 12x37mmAA, 12x20mmAA.						
AA upgrade: (1941) now 20x37mmAA. AAFF 124						
Coastal Defence - <i>San Giorgio</i> (1910):	16,800pts	STF 23/15	TR D	16kn	8/2/8/2/10	AAFF 60
2x10-inch/45, 4x7.5-inch/45, 9x4-inch/47, 6x37mmAA, 12x20mmAA, 9xHMG.[scuttled Tobruk 22 Jan 1941]						

AIRCRAFT CARRIER

CV - <i>Aquila</i> (Sep 1943 ceased):	21,575pts	STF 43/28	TR C	30kn	-0/-3/-/-	AAFF 180
8x5.3-inch/45 DP, 12x65mmAA, 132x20mmAA, 16xHMG. Hanger, 2 lifts, 2 cat. 38 a/c normal, (51 a/c max)						
Aircraft - Saiman 200 (training), Fiat G50/B (FF), Reggiane Re2001 (FF/BM)						
Air Ops 38 12/6 12 CV [5-1/2/2 Flat Top 13 4/2 4 CV]						

HEAVY CRUISERS:

CA - <i>Trento</i> (1929):	20,968pts	STF 28/19	TR D	31kn	3/2/4/2/4	AAFF 66
8x8-inch/50, 14x3.9-inch/47, 8x37mmAA, 8xHMG. AA upgrade (1942) 8x20mm, AAFF 74. 3 a/c, 1 catapult						
CA - <i>Trieste</i> (1928):	20,968pts	STF 28/19	TR D	31kn	3/2/4/2/4	AAFF 66
8x8-inch/50, 14x3.9-inch/47, 8x37mmAA, 8xHMG. AA upgrade (1942) 8x20mm, AAFF 74. 3 a/c, 1 catapult						
CA - <i>Zara</i> (1931):	19,337pts	STF 26/17	TR E	32kn	6/3/6/3/6	AAFF 66
8x8-inch/53, 14x3.9-inch/47, 8x37mmAA, 8xHMG, 2x4.7-inch/15 StarShell. 2 a/c, 1 catapult						
CA - <i>Gorizia</i> (1931):	19,370pts	STF 26/17	TR E	32kn	6/3/6/3/6	AAFF 66
8x8-inch/53, 14x3.9-inch/47, 8x37mmAA, 8xHMG, 2x4.7-inch/15 StarShell. (1943) AAFF 94. 2 a/c, 1 cat.						
CA - <i>Pola</i> (1932):	19,170pts	STF 26/17	TR E	32kn	6/3/6/3/6	AAFF 66
8x8-inch/53, 14x3.9-inch/47, 8x37mmAA, 8xHMG, 2x4.7-inch/15 StarShell. 2 a/c, 1 catapult						
CA - <i>Fiume</i> (1931):	18,978pts	STF 26/17	TR E	32kn	6/3/6/3/6	AAFF 66
8x8-inch/53, 14x3.9-inch/47, 8x37mmAA, 8xHMG, 2x4.7-inch/15 StarShell. 2 a/c, 1 catapult						
CA - <i>Bolzano</i> (1933):	18,480pts	STF 28/19	TR D	36kn	3/2/4/2/4	AAFF 66
8x8-inch/53, 14x3.9-inch/47, 8x37mmAA, 4x40mmAA, 4x20mmAA, 8x21-inch TT. 2 a/c, 1 catapult						

LIGHT CRUISERS:

CL - <i>Bartolomeo Colleoni</i> (1932):	11,260pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 110 mines. 2 a/c, 1 catapult						
CL - <i>Giovanni delle Bande Nere</i> (1931):	11,260pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 110 mines. 2 a/c, 1 catapult						
CL - <i>Alberico da Barbiano</i> (1931):	12,621pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 110 mines. 2 a/c, 1 catapult						
CL - <i>Alberto de Guissano</i> (1931):	12,621pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 110 mines. 2 a/c, 1 catapult						
CL - <i>Luigi Cadorna</i> (1933):	11,373pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 30
8x6-inch/53, 6x3.9-inch/47, 2x37mmAA, 8xHMG, 4x21-inch TT. Up to 94 mines. 2 a/c, 1 catapult						
CL - <i>Armando Diaz</i> (1933):	11,456pts	STF 25/16	TR D	32kn	1/1/1/1/2	AAFF 30
8x6-inch/53, 6x3.9-inch/47, 2x40mmAA, 8xHMG, 4x21-inch TT. Up to 94 mines. 2 a/c, 1 catapult						
CL - <i>Raimondo Montecuccoli</i> (1935):	14,223pts	STF 26/17	TR D	33kn	3/1/3/1/4	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 96 mines. 2 a/c, 1 catapult						
CL - <i>Musio Attendolo</i> (1935):	14,223pts	STF 26/17	TR D	33kn	3/1/3/1/4	AAFF 42
8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 8xHMG, 4x21-inch TT. Up to 96 mines. 2 a/c, 1 catapult						

CL -	<i>Duca D'Aosta</i> (1935):	15,440pts	STF 27/18	TR D	31kn	3/2/4/2/4	AAFF 46
	8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 12xHMG, 6x21-inch TT. Up to 112 mines. 2 a/c, 1 catapult						
CL -	<i>Eugenio Di Savoia</i> (1935):	15,440pts	STF 27/18	TR D	31kn	3/2/4/2/4	AAFF 46
	8x6-inch/53, 6x3.9-inch/47, 8x37mmAA, 12xHMG, 6x21-inch TT. Up to 112 mines. 2 a/c, 1 catapult						
CL -	<i>Duca Degli Abruzzi</i> (1937):	18,030pts	STF 25/16	TR D	31kn	4/2/5/4/5	AAFF 52
	10x6-inch/53, 8x3.9-inch/47, 8x37mmAA, 12x20mmAA, 6x21-inch TT. 120 mines. 2 DCT & DC. 4 a/c, 2 cat						
CL -	<i>Giuseppe Garibaldi</i> (1937):	18,030pts	STF 25/16	TR D	31kn	4/2/5/4/5	AAFF 52
	10x6-inch/53, 8x3.9-inch/47, 8x37mmAA, 12x20mmAA, 6x21-inch TT. 120 mines. 2 DCT & DC. 4 a/c, 2 cat						
CL -	<i>Attilio Regolo</i> (May 1942):	8,875pts	STF 20/13	TR D	34kn	-/-/1/-/1	AAFF 32
	8x5.3-inch/45, 8x37mmAA, 8x20mmAA, 8x21-inch TT. Up to 130 mines, 2 DCT & DC						
CL -	<i>Scipione Africano</i> (Apr 1943):	8,875pts	STF 20/13	TR D	34kn	-/-/1/-/1	AAFF 32
	8x5.3-inch/45, 8x37mmAA, 8x20mmAA, 8x21-inch TT. Up to 130 mines, 2 DCT & DC						
CL -	<i>Pompeo Magno</i> (Jun 1943):	8,875pts	STF 20/13	TR D	34kn	-/-/1/-/1	AAFF 32
	8x5.3-inch/45, 8x37mmAA, 8x20mmAA, 8x21-inch TT. Up to 130 mines, 2 DCT & DC						
CL -	<i>Bari</i> (1914/24 ex-Pillau):	9,450pts	STF 19/13	TR C	24kn	3/2/2/1/3	AAFF 18
	8x5.9-inch SKL/43 (Ge), 3x3-inch/40, 6x20mmAA, 6xHMG. Up to 120 mines						

DESTROYERS

Mirabello class (2 off)

DD -	<i>Carlo Mirabello</i> (1916):	2676pts	STF 15/10	TR B	27kn	Up to 100 mines.	AAFF 36
	8x4-inch/45 V HA, 2x40mm (2pdr), 8x20mmAA, 4x17.7-inch TT.						
DD -	<i>Augusto Riboty</i> (1917):	2676pts	STF 15/10	TR B	27kn	Up to 100 mines.	AAFF 36
	8x4-inch/45 V HA, 2x40mm (2pdr), 8x20mmAA, 4x17.7-inch TT. (1942) AAFF 22						
	Upgrade (1942) 4x4-inch/45 V HA, 2x40mm (2pdr), 6x20mmAA, 4x17.7-inch TT (TT removed 1944).						

Leone class (3 off)

DD -	<i>Leone</i> (1924):	3345pts	STF 16/11	TR C	33kn	Up to 60 mines.	AAFF 32
	8x4.7-inch/50 HA, 2x40mm (2pdr), 4x20mmAA, 6x21-inch TT.						
DD -	<i>Tigre</i> (1924):	3345pts	STF 16/11	TR C	33kn	Up to 60 mines.	AAFF 32
	8x4.7-inch/50 HA, 2x40mm (2pdr), 4x20mmAA, 6x21-inch TT.						
DD -	<i>Pantera</i> (1924):	3345pts	STF 16/11	TR C	33kn	Up to 60 mines.	AAFF 32
	8x4.7-inch/50 HA, 2x40mm (2pdr), 4x20mmAA, 6x21-inch TT.						

Sella class (2 off)

DD -	<i>Francesco Sella</i> (1926):	1455pts	STF 12/8	TR C	33kn	Up to 32 mines.	AAFF 16
	4x4.7-inch/50 HA, 4x20mmAA, 4x21-inch TT. 2 DCT & DC.						
DD -	<i>Quintino Sella</i> (1927):	1455pts	STF 12/8	TR C	33kn	Up to 32 mines.	AAFF 16
	4x4.7-inch/50 HA, 4x20mmAA, 4x21-inch TT. 2 DCT & DC.						

Sauro class (4 off)

DD -	<i>Nazario Sauro</i> (1926):	1587pts	STF 12/8	TR C	31kn	Up to 52 mines.	AAFF 18
	4x4.7-inch/50 HA, 4x20mmAA, 2xHMG, 6x21-inch TT.						
DD -	<i>Cesare Battisti</i> (1927):	1587pts	STF 12/8	TR C	31kn	Up to 52 mines.	AAFF 18
	4x4.7-inch/50 HA, 4x20mmAA, 2xHMG, 6x21-inch TT.						
DD -	<i>Daniele Manin</i> (1927):	1587pts	STF 12/8	TR C	31kn	Up to 52 mines.	AAFF 18
	4x4.7-inch/50 HA, 4x20mmAA, 2xHMG, 6x21-inch TT.						
DD -	<i>Francesco Nullo</i> (1927):	1587pts	STF 12/8	TR C	31kn	Up to 52 mines.	AAFF 18
	4x4.7-inch/50 HA, 4x20mmAA, 2xHMG, 6x21-inch TT.						

Turbine class (8 off)

DD -	<i>Turbine</i> (1927):	1635pts	STF 13/9	TR C	33kn	Up to 52 mines.	AAFF 20
	4x4.7-inch/50 HA, 2x40mmAA, 4xHMG, 6x21-inch TT. 2 DCT & DC.						

Others – *Aquilone* (1927), *Borea* (1927), *Espero* (1928), *Euro* (1927), *Nembo* (1927), *Ostro* (1928), *Zeffiro* (1928)

Navigatori class (12 off)

DD -	<i>Antonio da Noli</i> (1929):	2895pts	STF 15/10	TR C	32kn	Up to 54 mines.	AAFF 30
	6x4.7-inch/50 HA, 2x37mmAA, 8x20mmAA, 6x21-inch TT. 2 DCT & 30 DC.						

Others – *Alvise da Mosto* (1930), *Niccoloso da Recco* (1930), *Giovanni da Verrazzano* (1930), *Lanzerotto Malorelle* (1930), *Leone Pancaldo* (1929), *Emanuele Pessagno* (1931), *Antonio Pigafetta* (1931), *Luca Tarigo* (1929), *Antoniotto Usodimare* (1929), *Ugolino Vivaldi* (1930), *Niccolo Zeno* (1930)

Freccia class (4 off)

DD -	<i>Freccia</i> (1931):	1838pts	STF 14/9	TR C	30kn	Up to 54 mines.	AAFF 20
	4x4.7-inch/50 HA, 8x20mmAA, 6x21-inch TT. 2 DCT & 30 DC.						

Others – *Dardo* (1932), *Saetta* (1932), *Strale* (1932)

Fologore class (4 off)

DD - *Fologore* (1934): 1860pts STF 14/9 TR C 30kn Up to 54 mines. AAFF 24
4x4.7-inch/50 HA, 2x37mmAA, 8x20mmAA, 6x21-inch TT. 2 DCT & 30 DC.

Others – *Baleno* (1934), *Fulmine* (1934), *Lampo* (1934)

Maestrale class (4 off)

DD - *Maestrale* (1934): 2460pts STF 15/10 TR C 33kn Up to 54 mines. AAFF 22
4x4.7-inch/50 HA, 8x20mmAA, 2xHMG, 6x21-inch TT. 1x4.7-inch/15 StarShell. 4 DCT & 30 DC.

Others – *Grecale* (1934), *Libeccio* (1934), *Scirocco* (1934)

Oriani class (4 off)

DD - *Alfredo Oriani* (1937): 2670pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 28
4x4.7-inch/50 HA, 8x20mmAA, 12x20mmAA, 6x21-inch TT. 1x4.7-inch/15 StarShell. 2-4 DCT & 30 DC.

Others – *Vittorio Alfieri* (1937), *Giosue Carducci* (1937), *Vincenzo Gioberti* (1937)

Soldati class (total 17 completed)

DD - *Alpino* (1937): 2820pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 22
4x4.7-inch/50 HA, 1x37mmAA, 8x20mmAA, 6x21-inch TT. 1x4.7-inch/15 StarShell. 2-4 DCT & 30 DC.

Others 1937-39, Batch 1 (8 off) – *Artigliere*, *Accari*, *Aviere*, *Bersagliere*, *Corazziere*, *Fusiliere*, *Granatiere*.

DD - *Carabinieri* (1939): 2820pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 25
5x4.7-inch/50 HA, 1x37mmAA, 8x20mmAA, 6x21-inch TT. 2-4 DCT & 30 DC.

Others 1937-39, Batch 2 (4 off) – *Camica Nera*, *Geniere*, *Lanciere*.

DD - *Bombardiere* (1942): 2820pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 27
5x4.7-inch/50 HA, 12x20mmAA, 6x21-inch TT. 2-4 DCT & 30 DC.

Others 1937-39, Batch 3 (5 completed) – *Corsaro* & *Mitragliere* same as *Bombardiere*. *Legionario* & *Velite* below.

DD - *Legionirio* (1942): 2820pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 31
5x4.7-inch/50 HA, 2x37mmAA, 12x20mmAA, 3x21-inch TT. 2-4 DCT & 30 DC.

DD - *Velite* (1942): 2820pts STF 15/10 TR C 34kn Up to 48 mines. AAFF 28
4x4.7-inch/50 HA, 2x37mmAA, 12x20mmAA, 3x21-inch TT. 1x4.7-inch/15 StarShell. 2-4 DCT & 30 DC.

(*Regia Marina* also used captured French and Yugoslav destroyers).

TORPEDO BOATS

Audace Torpedo Boat

TB - *Audace* (1915): 1244pts STF 12/8 TR B 27kn Up to 10 mines. AAFF 16
4x4-inch/35, 2x40mmAA.
Sonar. 2 DCT & DC.

Pilo class Torpedo Boats (7 off)

TB - *Pilo* (1915): 1155pts STF 10/7 TR B 25kn Up to 10 mines. AAFF 21
5x4-inch/35, 6x20mmAA, 4x17.7-inch TT.

Others – *Abba* (1915), *Bronzetti* (1916), *Missori* (1916), *Mosto* (1915), *Nulla* (1915), *Schiaffino* (1915).

Sirtori class Torpedo Boats (1916-17, 4 off)

TB - *Sitori* (1916): 1005pts STF 10/7 TR B 25kn Up to 10 mines. AAFF 20
6x4-inch/45, 2x20mmAA, 4x17.7-inch TT.
Sonar. 2 DCT & DC.

La Masa class Torpedo Boats (1917-19, 7 off)

TB - *Giuseppe la Masa* (1917): 975pts STF 10.7 TR B 27kn Up to 10 mines. AAFF 15
3x4-inch/35, 6x20mmAA, 4x17.7-inch TT. (some wartime variations).

Palesto class Torpedo Boats (1921-23, 4 off)

TB - *Palesto* (1921): 1292pts STF 12/8 TR B 27kn Up to 12 mines. AAFF 18
4x4-inch/45, 3x40mmAA, 4x17.7-inch TT.
Sonar. 2 DCT & DC.

Generali class Torpedo Boats (1921-22, 4 off)

TB - *Generale Antonio Cantore* (1921): 955pts STF 10/7 TR B 25kn Up to 12 mines. AAFF 15
3x4-inch/45, 3x40mmAA, 4x17.7-inch TT.
Sonar. 2 DCT & DC.

Curtatone class Torpedo Boats (1923-24, 4 off)

TB - *Curtatone* (1923): 1314pts STF 12/8 TR B 28kn Up to 16 mines. AAFF 18
4x4-inch/45, 6x20mmAA, 2x21-inch TT.
Sonar. 2 DCT & DC.

Spica class Torpedo Boats (1936-38, 30 off)

TB - *Perseo* (1936): 1184pts STF 12/8 TR B 29kn Up to 20 mines. AAFF 23
3x3.9-inch/47, 10x20mmAA, 4xHMG, 4x17.7-inch TT.
Sonar. 4 DCT & DC.

Orsa class Torpedo Boats (4 off)

TB - *Orsa* (1938): 1275pts STF 12/8 TR B 28kn Up to 20 mines. AAFF 17
2x3.9-inch/47, 11x20mmAA, 4x17.7-inch TT.
Sonar. 6 DCT & DC.

Others – *Pegaso* (1938), *Pricione* (1938), *Orione* (1938).

Animoso class Torpedo Boats (16 off)
 TB - *Animoso* (Apr 1941): 1806pts STF 12/8 TR B 26kn Up to 20 mines. AAFF 21
 3x3.9-inch/47, 12x20mmAA, 4x17.7-inch TT. Sonar. 6 DCT & DC.
 Others – (1941-44) Same as *Animoso*.
 Ariete class Torpedo Boats (1943-44, 14 off completed)
 TB - *Ariete* (Oct 1943): 1196pts STF 12/8 TR B 31kn Up to 28 mines. AAFF 16
 2x3.9-inch/47, 10x20mmAA, 6x17.7-inch TT. Sonar. 2 DCT & DC.
 Others – *Pegaso* (1938), *Pricione* (1938), *Orione* (1938).

CORVETTES, & SLOOP

Giavannini class (1922) Escort Gunboat
Ernesto Giavannini (1922): 315pts STF 6/4 TR A 23kn AAFF 09
 2x4-inch/35, 1xHMG, 2x17.7-inch TT. Up to 12 mines.
 Fast Transport, Sloop
Diana (May 1940): 2646pts STF 15/10 TR B 32kn AAFF 12
 2x4-inch/35, 6x20mmAA. Up to 20 mines, 11 motor torpedo boats, or 300 passengers.
 Sonar. 2 DCT, 42 DC. [sunk 29 Jun 1942]
 Colonial Sloop
Eretria (1937): 3310pts STF 12/8 TR A 20kn AAFF 04
 4x4.7-inch/45, 2x40mm/39, 4xHMG. Up to 20 mines. Sonar. 2 DCR & 20 DC.
 Submarine Chaser
Albatros (Apr 1941): 508pts STF 9/6 TR A 24kn Up to 20 mines. AAFF 12
 2x4-inch/35, 4x37mmAA, 2xHMG, 2x17.7-inch TT. Sonar. 2 DCT & DC. [sunk 27 Sep 1941]
 Gabbiano class (1942-43, 29 completed) Corvettes
Gabbiano (Oct 1942): 670pts STF 10/7 TR A 18kn AAFF 10
 1x3.9-inch/47, 7x20mmAA, 2x17.7-inch TT (TT early ships only). Sonar. 10 DCT & 86 DC.

MINE WARFARE VESSELS

Albona class (1920, 3 off) ex-Austrian Small Minelayers
Albona (1920): 170pts STF 4/3 TR A 11kn AAFF 12
 1x3-inch/40. Up to 24 mines & mechanical minesweeping gear. Others: *Laurano*, & *Ravigno*.
 Crotone class (1921, 2 off) ex-German Mineslayers
Crotone (1921): 538pts STF 9/6 TR A 14kn AAFF 12
 2x4-inch/35. Up to 70 mines & mechanical minesweeping gear. Other: *Viesti*.
 Fasana class (4 off) Minelayers
Fasana (1925): 796pts STF 8/5 TR A 10kn AAFF 12
 1x3-inch/40. Up to 54 mines & mechanical minesweeping gear.
 Others: *Buccari* (1927), *Durazzo* (1926), & *Pelagosa* (1927).
 Ostia class (6 off) Minelayers
Ostia (1926): 922pts STF 8/5 TR A 15kn AAFF 12
 2x4-inch/35, 1x3-inch/40. Up to 80 mines & (fitted for) mechanical minesweeping gear.
 Others: *Azio* (1928), *Dardanelli* (1926), *Legnano* (1927), *Lepanto* (1928), & *Milazzo* (1926).
 RD (Regio Dragomine) Minesweepers
RD4 (1919): 310pts STF 6/4 TR A 13kn Minesweeping gear. 1x3-inch/40. AAFF 03
 Others: *RD5 to RD57* (1919-22, total 38 off survivors served WWII)
RD1 (1938): 282pts STF 5/3 TR A 12kn Minesweeping gear. 1x3-inch/40. AAFF 03

MOTOR TORPEDO BOATS (MTB / PT)

MAS 204 class boats (1916-19, 14 off) MAS 204 to MAS 216.
MAS 204 (1916): 18pts STF 3/2 TR A 26kn Fast Torpedo Boats, 2xMG, 2x21-inch TT. Mines.
 MAS 423 class boats (1929-38, 14 off) MAS 423 to MAS 437.
MAS 423 (1929): 21pts STF 3/2 TR A 42kn Fast Torpedo Boats, 2xMG, 2x21-inch TT. 3 DC.
 MAS 438 class boats (1935-38, 42 off) MAS 438 to MAS 480.
MAS 438 (1935): 45pts STF 3/2 TR A 45kn Fast Torpedo Boats, 2xMG, 2x21-inch TT. 4 DC.
 MAS 500 class boats (1939-40, 42 off) MAS 538 to MAS 580.
MAS 531 (1939): 86pts STF 4/3 TR A 40kn Fast Torpedo Boats, 3xMG, 4x21-inch TT. 2 DC.

AUXILIARY CRUISERS

AMC - *Barletta* (1931): 1,975pts(grt) STF 12/8 TR A 14kn AAFF 10
 2x4-inch/45, 4xHMG. Up to 60 mines. Cargo ship, Could carry up to 100 men.
 Others: (all requisitioned 1940) *Adriatico*, *Brindisi*, *Brioni*, *Lero*, *Monte Gargano* and *Zara*.

AMC - <i>Lago Tana</i> (1939):	783pts(grt)	STF 11/7	TR A	15kn	AAFF 10
2x-3.9inch/47 (100mm), 4xHMG.					
AMC - <i>Ramb III</i> (1931):	3,667pts(grt)	STF 21/14	TR A	18kn	AAFF 14
4x4-inch/45, 8xHMG.					
Refrigerated cargo ship.					

AUXILIARY GUNBOATS / TRAWLERS

AG - <i>Alula</i> (1912):	462pts	STF 7/4	TR A	12kn	AAFF 05
1x3-inch/30 2xHMG. Used for Auxiliary Patrols.					
AG - <i>Giovanni Berta</i> (1924):	400pts	STF 6/4	TR A	12kn	AAFF 08
2x3-inch/40 DP 2xHMG. Used for Auxiliary Patrols.					
AG - <i>Mario Bianco</i> (1911):	385pts	STF 6/4	TR A	12kn	AAFF 08
2x3-inch/40 DP 2xHMG. Used for Auxiliary Patrols. (ex-G24, Japanese build)					
AG - <i>Palmaiola</i> (1902):	708pts	STF 7/4	TR A	14kn	AAFF 05
1x3-inch/30 2xHMG. Ex-G34. (built Japan WWI). Used for Auxiliary Patrols.					
AG - <i>Dante de Lutti</i> (1911):	400pts	STF 6/4	TR A	12kn	AAFF 08
2x3-inch/40 DP 2xHMG. Used for Auxiliary Patrols.					
AG - <i>Richardo Grazioli Lante</i> (1912):	442pts	STF 7/5	TR A	11kn	AAFF 08
2x3-inch DP 2xHMG. Used for Auxiliary Patrols.					
AG - <i>Valoroso</i> (1908):	582pts	STF 6/4	TR A	11kn	AAFF 08
1x3-inch AA 2xHMG. Used for Auxiliary Patrols.					
Hydrophones. 2 DCs.					

SUBMARINES

H-class (5 off) British design

SM - <i>H1</i> (1918):	710pts	STF 6/4	TR C	12kn, 8kn (submerged)	Test depth 160ft
Submerged: 4x18-inch TT (4 bow) with 6 TTs. Surface: 1x3-inch/30, 1xHMG, AAFF 04					
Radio, hydrophones. Crash dive 40 sec*. 3,300nm@7kn on surface. 110nm@3.5kn submerged.					
Others: (1918) <i>H2, H4, H6, & H8</i> .					

Balilla class (4 off)

SM - <i>Balilla</i> (1928):	2856pts	STF 12/8	TR C	17kn, 9kn (submerged)	Test depth 288ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x4.7-inch/45, 4xHMG, AAFF 07					
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 3,000nm@17kn, 12,000nm@7kn (aux.) on surface.					
110nm@3kn, 8nm@9kn submerged. Others: (1928-29) <i>Millelira, Sciesa, & Toti</i> .					

Mameli class (4 off)

SM - <i>Mameli</i> (1929):	1515pts	STF 9/6	TR C	15kn, 7kn (submerged)	Test depth 288ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 10 TTs. Surface: 1x4-inch/35, 2xHMG, AAFF 05					
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 2,400nm@12kn, 4,360nm@8kn on surface.					
110nm@3kn, 8nm@7kn submerged. Others: (1929) <i>Pier Capponi, Da Procida, & Speri</i> .					

Pisani class (4 off)

SM - <i>Vittor Pisani</i> (1929):	1586pts	STF 9/6	TR C	15kn, 8kn (submerged)	Test depth 288ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 9 TTs. Surface: 1x4-inch/35, 2xHMG, AAFF 05					
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 1,500nm@15kn, 4,250nm@9kn on surface.					
70nm@4kn, 7nm@8kn submerged. Others: (1929) <i>Giovanni Bausan, Marcantonio Colonna, & De Geneyes</i> .					

Fieramosca (1 off)

SM - <i>Ettore Fieramosca</i> (1931):	2948pts	STF 12/8	TR C	15kn, 8kn (submerged)	Test depth 288ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 14 TTs. Surface: 1x4.7-inch/45, 4xHMG, AAFF 07					
Radio, hydrophones, basic sonar. Crash dive 50 sec*. 1,600nm@15kn, 5,300nm@8kn on surface.					
90nm@3kn, 7nm@8kn submerged.					

Bandiera class (4 off)

SM - <i>Fratelli Bandiera</i> (1930):	1730pts	STF 10/6	TR C	15kn, 8kn (submerged)	Test depth 288ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 12 TTs. Surface: 1x4-inch/35, 2xHMG, AAFF 05					
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 1,500nm@15kn, 4,750nm@8.5kn on surface.					
60nm@4kn, 6nm@8kn submerged. Others: (1930) <i>Luciano Manara, Ciro Menotti, Santorre Santarosa</i> .					

Squalo class (4 off)

SM - <i>Squalo</i> (1930):	1712pts	STF 10/6	TR C	15kn, 8kn (submerged)	Test depth 288ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 12 TTs. Surface: 1x4-inch/35, 2xHMG, AAFF 05					
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 1,820nm@15kn, 5,650nm@8kn on surface.					
100nm@3kn, 7nm@8kn submerged. Others: (1930-31) <i>Narvalo, Delfino, & Tricheco</i> .					

Bragadin class (2 off)

SM - *Marccantonio Bragadin* (1931): 1750pts STF 10/6 TR C 11.5kn, 7kn (submerged) Test depth 288ft
 Submerged: 4x21-inch TT (4 bow) with 6 TTs. Surface: 1x4-inch/35, 2xHMG, AAFF 05
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 3,300nm@11kn, 4,200nm@6kn on surface.
 86nm@2kn, 10nm@7kn submerged. Other: (1931) *Filippi Corridoni*.

Argonauta class (7 off) – First of 600 Series, Short-Range (Mediterranean) Submarines.

SM - *Argonauta* (1932): 1645pts STF 8/5 TR C 14kn, 7.5kn (submerged) Test depth 260ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x4-inch/35 (102mm), 2xHMG, AAFF 05
 Radio, hydrophones, basic sonar. Crash dive 45 sec. (* 1942/43 survivors 40 sec with modified conningtower)
 5,000nm@8kn, 2,300nm@14kn on surface. 110nm@3kn, 7nm@8kn submerged.
 Others: (1932-33) *Argonauta, Fisalia, Jalea, Jantina, Medusa, Saipa, Serpente*. [5 sunk, 1 scuttled in WWII]

Settembrini class (2 off)

SM - *Luigi Settembrini* (1932): 1730pts STF 10/6 TR C 17kn, 7kn (submerged) Test depth 288ft
 Submerged: 8x21-inch TT (4 bow/4 stern) with 12 TTs. Surface: 1x4-inch/35, 4xHMG, AAFF 07
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 3,700nm@12kn, 6,200nm@7kn on surface.
 100nm@3kn, 6nm@7kn submerged. Other: (1932) *Ruggero Settimo*.

Sirena class (12 off)

SM - *Sirena* (1933): 1275pts STF 8/5 TR C 14kn, 7.5kn (submerged) Test depth 260ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x3.9-inch/47 (100mm), 2-4xHMG, AAFF 07
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 5,000nm@8kn surface. 72nm@4kn submerged.
 Others: (1933-34) *Ametista, Anfitrite, Diamante, Galatea, Naiade, Nereide, Ondina, Rubino, Sirena, Smeraldo, Topazio, Zaffiro*. [11 lost in WWII]

Archimedes class (2 off)

SM - *Ferraris* (1934): 1888pts STF 10/6 TR C 17kn, 8kn (submerged) Test depth 288ft
 Submerged: 8x21-inch TT (4 bow/4 stern) with 14 TTs. Surface: 2x3.9-inch/47, 2xHMG, AAFF 08
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 3,300nm@16kn, 10,30nm@8kn on surface. 105nm@3kn, 7nm@8kn submerged. Other: (1935) *Galileo*.

Glauco class (2 off)

SM - *Pietro Calvi* (1935): 1988pts STF 10/7 TR C 17kn, 8kn (submerged) Test depth 288ft
 Submerged: 8x21-inch TT (4 bow/4 stern) with 14 TTs. Surface: 2x3.9-inch/47, 2xHMG, AAFF 08
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 2,800nm@17kn, 9,750nm@8kn on surface. 110nm@3kn, 8nm@8kn submerged. Other: (1935) *Otaria*.

Pietro Micca (1 off)

SM - *Pietro Micca* (1935): 2955pts STF 13/8 TR C 14kn, 7kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 10 TTs. Surface: 2x4.7-inch/45, 4xHMG, AAFF 10
 Radio, hydrophones, basic sonar. Crash dive 50 sec*. Central chamber for mines. Up to 20 mines.
 2,600nm@14kn, 6,400nm@9kn on surface. 60nm@4kn, 6nm@7kn submerged.

Calvi class (3 off)

SM - *Pietro Calvi* (1935): 3090pts STF 12/8 TR C 17kn, 7kn (submerged) Test depth 288ft
 Submerged: 8x21-inch TT (4 bow/4 stern) with 16 TTs. Surface: 1x4.7-inch/45, 4xHMG, AAFF 07
 Radio, hydrophones, basic sonar. Crash dive 50 sec*. (*Tazzoli* only – up to 14 mines aft).
 5,600nm@14kn, 11,400nm@8kn on surface. 120nm@3kn, 7nm@7.5kn submerged.
 Other: (1935-36) *Guiseppe Finzi, & Enrico Tazzoli*.

Perla class (10 off)

SM - *Perla* (1936): 1283pts STF 8/5 TR C 14kn, 7.5kn (submerged) Test depth 260ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x3.9-inch/47 (100mm), 2-4xHMG, AAFF 07
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 6,000nm@8kn surface. 85nm@4kn submerged.
 Others: (all 1936) *Ambra, Berillo, Corallo, Diaspro, Gemme, Iride, Malachite, Onice, Turchese*. [6 lost WWII]

Adua class (17 off)

SM - *Adua* (1936): 1284pts STF 8/5 TR C 14kn, 7.5kn (submerged) Test depth 260ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x3.9-inch/47 (100mm), 1-2xHMG, AAFF 05
 Radio, hydrophones, basic sonar. Crash dive 45 sec. (* 1942/43 survivors 40 sec with modified conningtower)
 3,180nm@10.5kn, 2200nm@14kn on surface. 85nm@4kn, 7nm@7.5kn submerged.
 Others: (1936-38) *Adua, Alagi, Aradam, Ascianghi, Axum, Beilul, Dagabur, Dessie, Durbo, Gondar, Lafole, Macalle, Neghelli, Scire, Tembien, Uarseiek, Uebi, Scebeli*. [16 lost in WWII]

Foca class (3 off) Minelaying Submarines

SM - *Foca* (1937): 2488pts STF 11/7 TR C 15kn, 7kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow/2 stern) with 6 TTs. Surface: 1x3.9-inch/40, 4xHMG, AAFF 10
 Radio, hydrophones, basic sonar. Crash dive 45 sec*. 2 mine tubes aft & midships chamber. Up to 36 mines.
 2,500nm@14kn, 7,800nm@8kn on surface. 120nm@3kn submerged. Other: (1937-39) *Zoea, & Atropa*.

Argo class (2 off)

SM - *Argo* (1937): 1527pts STF 9/6 TR C 14kn, 8kn (submerged) Test depth 288ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 10 TTs. Surface: 1x3.9-inch/40, 4xHMG, AAFF 10
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
5,300nm@14kn, 10,200nm@8.5kn on surface. 100nm@3kn, 8nm@8kn submerged. Other: (1937) *Velella*.

Marcello class (11 off)

SM - *Marcello* (1939): 1976pts STF 10/7 TR C 17.5kn, 8kn (submerged) Test depth 328ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 16 TTs. Surface: 2x3.9-inch/40, 4xHMG. AAFF 10
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
2,500nm@17kn, 7,500nm@9.5kn on surface. 120nm@3kn, 8nm@8kn submerged.

Other: (1939) *Mocenigo, Dandolo, Veniero, Provana, Nani, Barbarigo, Emo, Morosini, Capellini, & Faa di Bruno*.

Brin class (5 off)

SM - *Brin* (1938): 1900pts STF 10/6 TR C 17kn, 8kn (submerged) Test depth 288ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 14 TTs. Surface: 1x3.9-inch/40, AAFF 03
Radio, hydrophones, basic sonar. Crash dive 45 sec*. AA Upgrade: (1942) add 4xHMG. AAFF 07.
3,800nm@15kn, 9,000nm@8kn on surface. 90nm@4kn, 8nm@8kn submerged.

Other: (1938-39) *Galvani, Guglielmotti, Archimede, & Torricelli*.

Liuzzi class (4 off)

SM - *Console Generale Liuzzi* (1939): 2265pts STF 11/7 TR C 17.5kn, 8.5kn (submerged) Test depth 328ft
Submerged: 8x21-inch TT (4 bow/4 stern) with 12 TTs. Surface: 1x3.9-inch/40, 4xMG, AAFF 07
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
3,200nm@17kn, 13,000nm@8kn on surface. 110nm@4kn, 8nm@8kn submerged.

Other: (1939-40) *Alpino Bagnolini, Reginaldo Giuliani, & Capitano Tarantini*.

Marconi class (6 off)

SM - *Guglielmo Marconi* (1940): 2235pts STF 11/7 TR C 18kn, 8kn (submerged) Test depth 328ft
Submerged: 8x21-inch TT (8 bow/6 stern) with 16 TTs. Surface: 1x3.9-inch/40, 4xMG, AAFF 07
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
2,900nm@17kn, 10,500nm@8kn on surface. 110nm@3kn, 8nm@8kn submerged.

Other: (1940) *Leonardo da Vinci, Michele Bianchi, Luigi Torelli, Alexandro Malaspino, & Maggiore Baracca*.

Cagni class (4 off)

SM - *Ammiraglio Cagni* (1941): 3285pts STF 10/6 TR C 16.5kn, 8.5kn (submerged) Test depth 328ft
Submerged: 14x18-inch TT (8 bow/6 stern) with 36 TTs. Surface: 2x3.9-inch/40, 4xMG, AAFF 10
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
10,700nm@12kn, 19,000nm@6kn on surface. 107nm@3.5kn, 10nm@8.5kn submerged.

Other: (1941) *Ammiraglio Caraccioli, Ammiraglio Millo, & Ammiraglio Saint Bon*.

Acciaio class (13 off) – Last of 600 Series, Short-Range (Mediterranean) Submarines.

SM - *Acciaio* (1941): 1275pts STF 8/5 TR C 14kn, 7.7kn (submerged) Test depth 260ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 10 TTs. Surface: 1x3.9-inch/47 (100mm), 2x20mm. AAFF 05
Radio, hydrophones, basic sonar. Crash dive 45 sec*.
5,000nm@8.5kn, 3,180nm@10.5kn, 2,300nm@14kn on surface. 80nm@3kn, 7nm@7kn submerged.

Others: (1941-42) *Ambra, Berillo, Corallo, Diaspro, Gemme, Irìde, Malachite, Onice, Turchese*. [6 lost in WWII]

Flutto class (Series I, 9 off completed)

SM - *Flutto* (1943): 1670pts STF 9/6 TR C 16kn, 7kn (submerged) Test depth 328ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 1x3.9-inch/40, 4xMG, AAFF 07
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 5,400nm@8kn on surface. 80nm@4kn submerged.

Other: (1943) *Gorgo, Grongo, Nautilo, Marea, Tritone, Vortice, Murena, & Sparide*.

Flutto class (Series II, 3 off completed)

SM - *Bario* (1944): 175pts STF 9/6 TR C 16kn, 7kn (submerged) Test depth 328ft
Submerged: 6x21-inch TT (4 bow/2 stern) with 12 TTs. Surface: 2x20mmAA, AAFF 02
Radio, hydrophones, basic sonar. Crash dive 45 sec*. 5,400nm@8kn on surface. 80nm@4kn submerged.

Other: (1944) *Littio, & Sodio*. [launched as German boats – UIT7, 8 & 9.]

R class (2 off completed)

SM - *Romolo* (1943): 3909pts STF 10/6 TR C 13kn, 6kn (submerged) Test depth 328ft
Radio, hydrophones, basic sonar. Cargo: 610 ton fuel. Surface only: 3x20mmAA, AAFF 03
Crash dive 40 sec*. 12,000nm@9kn on surface. 110Nm@3.5kn submerged.

Other: (1943) *Remo*.

ITALIAN MERCHANT VESSELS:

Early War Merchant Vessels

SMS -	<i>Cadamo</i> (1905):	1010pts (grt)	STF 11/7	TR A	10kn	Cargo ship [mined 22 Dec 1941]
SMS -	<i>Isonzo</i> (1937): 2x4-inch/35, 4xHMG. AAFF 10.	5,004pts	STF 15/10	TR A	11kn	Water tanker Others: <i>Po</i> , <i>Vulturno</i> (Tyne, Italian Line)
MV/Sail -	<i>Labor</i> (1907):	55pts(grt)	STF 6/4	TR A	10kn	Small cargo ship
SMS -	<i>Lina Campanella</i> (1893): ex- <i>Aras</i> (Tyne, Italian Line)	3,210pts(grt)	STF 18/12	TR A	9kn	Water tanker Others: <i>Polefino</i> , <i>Traconi</i> .
SMS -	<i>Manzoni</i> (1902): ex-Szell Kalman (Royal Hungarian Fiume)	3,955pts(grt)	STF 20/13	TR A	14kn	Cargo ship
SMS -	<i>Olterra</i> (1913):	4,973pts	STF 21/14	TR A	9kn	Tanker
SMS -	<i>Rastrello</i> (1904):	1,249pts(grt)	STF 12/8	TR A	11kn	Cargo ship
SMS -	<i>Sabbia</i> (1926):	5,788pts(grt)	STF 22/14	TR A	10kn	Cargo ship
SMS -	<i>Serenitas</i> (1918) [Serenio]: ex- <i>War Coot</i> (C-class WWI standard ship)	5,171pts(grt)	STF 22/15	TR A	10kn	Cargo ship
SMS -	<i>Sturla</i> (1894):	1193pts (grt)	STF 10/7	TR A	8kn	Cargo ship [sunk 8 Jun 1941 off Maratea]
SMS -	<i>Sturla</i> (1933/1941):	1397pts (grt)	STF 12/8	TR A	9kn	Cargo ship
SMS -	ex-Platon, Danish/French. Given to Italy as reparations 1941.					[sunk 12 Jul 1942]
SMS -	<i>Tampico</i> (1908):	4958pts (grt)	STF 17/11	TR A	10kn	Tanker [torp'd 3 Nov 1941, later scutt'd]
SMS -	<i>Ticino</i> (1924): 2x3-inch DP, AAFF 06.	2588pts(grt)	STF 13/9	TR A	9kn	Water tanker
MV -	<i>Virtus</i> (1919):	377pts(grt)	STF 6/4	TR A	10kn	Cargo schooner
Ocean Liners						
SMS -	<i>Conte Rosso</i> (1922): (Glasgow, Lloyd Triestino)	17,857pts (grt)	STF 32/21	TR B	20kn	Ocean liner Troopship carrying 2,500 men (max 3,500 men)
SMS -	<i>Conte Verde</i> (1923): (Glasgow, Lloyd Triestino)	18,761pts (grt)	STF 32/21	TR B	20kn	Ocean liner Troopship carrying 2,500 men (max 3,500 men)
MV -	<i>Esperia</i> (1933): (Montefalcome, Italian Line)	11,398pts(grt)	STF 32/21	TR B	19kn	Ocean liner Troopship carrying 2,000 men, (max. 3,000 men).
SMS -	<i>Liguria</i> (1918): ex- <i>Melita</i> (Canadian Pacific)	15,354pts (grt)	STF 28/19	TR B	16kn	Ocean liner Troopship carrying 2,000 men (max 4,000 men)
MV -	<i>Marco Polo</i> (1912): (Montefalcome, Italian Line)	13,098pts(grt)	STF 26/17	TR B	17kn	Ocean liner Troopship carrying 1,200 men, (max. 2,000 men).
MV -	<i>Neptunia</i> (1932): (Montefalcome, Italian Line)	19,475pts(grt)	STF 32/21	TR B	21kn	Ocean liner Troopship carrying 1,500 men, (max. 2,500 men).
MV -	<i>Oceania</i> (1933): (Montefalcome, Italian Line)	19,507pts(grt)	STF 32/21	TR B	19kn	Ocean liner Troopship carrying 1,500 men, (max. 2,500 men).
SMS -	<i>Piemonte</i> (1918): ex- <i>Minnedosa</i> (Canadian Pacific)	15,209pts(grt)	STF 28/19	TR B	16kn	Ocean liner Troopship carrying 2,000 men, (max. 4,000 men).
MV -	<i>Victoria</i> (1931): (Montefalcome, Lloyd Triestino)	13,062pts(grt)	STF 30/19	TR B	23kn	Ocean liner Troopship carrying 2,000 men, (max. 3,000 men).
MV -	<i>Vulcania</i> (1928): (Montefalcome, Lloyd Triestino)	23,970pts (grt)	STF 29/19	TR A	19kn	Cargo ship Troopship carrying 2,000 men, (max. 3,000 men).

JAPANESE SHIP CHARACTERISTICS

BATTLESHIPS & BATTLECRUISERS

BCr - <i>Hiei</i> (1914/1934):	42,146pts	STF 36/24	TR E	30kn	8/5/9/6/10	AAFF 36
8x14-inch/45, 14x6-inch/50, 4x5-inch/50 DP, 4x40mmAA, 8x25mmAA, 8xHMG.						3 a/c, 1 catapult
[sunk 13 Nov 1942 off Guadalcanal]						
BCr - <i>Kongo</i> (1915/1934):	42,146pts	STF 36/24	TR E	30kn	8/5/9/6/10	AAFF 48
8x14-inch/45, 14x6-inch/50, 8x5-inch/50 DP, 4x40mmAA, 8x25mmAA, 8xHMG.						3 a/c, 1 catapult
Upgrades: (1943) 34x25mmAA, (remove HMG). AAFF 66. (1944) Early radar installed. 8x14-inch, 8x6-inch, 12x5-inch DP, 34x25mm. AAFF 70. (1945) 118x25mmAA. AAFF 154.						
Other: <i>Kirishima</i> (1915/34), & <i>Haruna</i> (1915/34).						Air ops 3 3/3 3 SP. [All BBs Flat Top 1 1/1 1 SP]
BB - <i>Fuso</i> (1915/1935):	45,720pts	STF 35/23	TR F	24kn	12/4/12/8/14	AAFF 40
12x14-inch/45, 14x6-inch/50, 8x5-inch/50 DP, 16x25mmAA						3 a/c, 1 catapult
Upgrades: (1943) 37x25mmAA. AAFF 61 (1944) Early radar installed. 96x25mm. AAFF 120.						
Other: <i>Yamashiro</i> (1917/1935)						
BB - <i>Ise</i> (1917/1937):	47,080pts	STF 35/23	TR F	25kn	12/4/12/6/12	AAFF 44
12x14-inch/45, 16x5.5-inch/50, 8x5-inch/50 DP, 20x25mmAA						3 a/c, 1 catapult
Other: <i>Hyuga</i> (1918/1937)						See also CVB <i>Ise</i> & <i>Hyugo</i> (Rebuilt 1943-44)
CVB - <i>Ise</i> (1917/1943-44):	46,430pts	STF 35/23	TR F	25kn	12/0-4/12/6/12	AAFF 105
8x14-inch/45, 16x5-inch/50 DP, 57x25mmAA						Early radar. Half flight deck aft. Up to 22 a/c, 2 catapults
Upgrades: (1945) 98x25mmAA. AAFF 152. Air Ops 22 10/5 5 CV.						[6-2/4/2 Flat Top 7 3/2 2 CV]
Other: CVB <i>Hyuga</i> (1918/1943-44) Battleship Carrier.						
BB - <i>Nagato</i> (1920):	51,400pts	STF 36/24	TR F	25kn	12/7/14/12/15	AAFF 44
8x16-inch/45, 18x5.5-inch/50, 8x5-inch/50 DP, 20x25mmAA						3 a/c, 1 catapult
Upgrades: (1945) Early radar installed. 98x25mmAA. AAFF 122.						
Other: <i>Mutsu</i> (1921)						
BB - <i>Yamato</i> (Dec 1941):	83,960pts	STF 43/28	TR G	27kn	12/7/14/12/15	AAFF 64
9x18.1-inch/45, 12x6.1-inch/60, 12x5-inch/50 DP, 24x25mmAA, 4xHMG.						7 a/c, 2 catapults
Sonar set & early radar sets installed. Air Ops 7 3/3 3 CV.						[18-28/4/2 Flat Top 2 1/1 1 CV]
Upgrades: (1943) 9x18.1-inch, 6x6.1-inch, 12x5-inch DP, 36x25mmAA. AAFF 72.						
(1944) 9x18.1-inch, 6x6.1-inch, 24x5-inch DP, 98x25mmAA. AAFF 170. (1945) 150x25mmAA. AAFF 222.						
Other: <i>Musashi</i> (Aug 1942)						

AIRCRAFT CARRIERS (FLEET, LIGHT, ESCORT, SEAPLANE):

Fleet Aircraft Carriers		[ship damage-gunners/AAF/hex move FT max. a/c launch(norm/basic) ready a/c type]				
CV - <i>Kaga</i> (1926):	31,670pts	STF 45/30	TR D	28kn	6/0-2/-/-/-	AAFF 70
10x8-inch/50 I BL, 16x5-inch/40 DP, 22x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 72 a/c (90 a/c max)						
Air Ops 90 36/18 36 CV						[6-1/4/2 Flat Top 30 12/3 8 CV]
CV - <i>Akagi</i> (1927):	30,700pts	STF 47/31	TR D	31kn	6/0-3/-/-/-	AAFF 64
6x8-inch/50 I BL, 12x4.7-inch/45 (10), 28x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 66 a/c (91 a/c max)						
Air Ops 91 36/18 36 CV						[6-1/4/2 Flat Top 30 12/3 8 CV]
CV - <i>Soryu</i> (1937):	15,906pts	STF 41/27	TR D	34kn	2/0-1/-/-/-	AAFF 64
12x5-inch/40 DP, 28x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 63 a/c (71 a/c max)						
Air Ops 71 36/18 36 CV						[5-1/4/2 Flat Top 24 8/3 7 CV]
CV - <i>Hiryu</i> (1939):	16,930pts	STF 41/27	TR D	34kn	4/0-1/-/-/-	AAFF 67
12x5-inch/40 DP, 31x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 63 a/c (73 a/c max)						
Air Ops 71 36/18 36 CV						[5-1/4/2 Flat Top 24 8/3 7 CV]
CV - <i>Shokaku</i> (Aug 1941):	23,565pts	STF 46/31	TR D	34kn	7/0-5/-/-/-	AAFF 90
16x5-inch/40 DP, 42x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 72 a/c (84 a/c max)						
Upgrades: (Jun 1942) 70x25mmAA. AAFF 118. (Sep 42) Early radar. (Jul 1944) 96x25mmAA. AAFF 144.						
Air Ops 84 30/9 24 CV						[6-1/5/2 Flat Top 28 10/3 8 CV]
CV - <i>Zuikaku</i> (Sep 1941):	23,565pts	STF 46/31	TR D	34kn	7/0-5/-/-/-	AAFF 90
16x5-inch/40 DP, 42x25mmAA. 1 flight & 2 hangar decks, 3 lifts. 72 a/c (84 a/c max)						
Upgrades: (Jun 1942) 70x25mmAA. AAFF 118. (Sep 42) Early radar. (Jul 1944) 96x25mmAA. AAFF 144.						
Air Ops 84 30/9 24 CV						[6-1/5/2 Flat Top 28 10/3 8 CV]
CV - <i>Junyo</i> (May 1942):	15,960pts	STF 40/26	TR A	25kn	2/-/-/-/-	AAFF 60
12x5-inch/40 DP, 24x25mmAA. 1 flight & 1 hangar deck, 2 lifts. 42 a/c (53 a/c max)						
Upgrades: (1943) 40x25mmAA. AAFF 76. (Jul 1944) 76x25mmAA. AAFF 100. Converted from liner.						
Air Ops 53 21/9 18 CV						[5-1/4/1 Flat Top 18 7/3 6 CV]

CV - *Hiyo* (July 1942): 15,960pts STF 40/26 TR A 25kn 2/-/-/- AAFF 60
 12x5-inch/40 DP, 24x25mmAA. 1 flight & 1 hangar deck, 2 lifts. 42 a/c (53 a/c max)
 Upgrades: (1943) 40x25mmAA. AAFF 76. (Jul 1944) 76x25mmAA. AAFF 100. Converted from liner.
 Air Ops 53 21/9 18 CV [5-1/4/1 Flat Top 18 7/3 6 CV]

Light Fleet Aircraft Carriers

CVL - *Hosho* (1922): 8,960pts STF 30/20 TR B 25kn AAFF 08
 4x5.5-inch/50 BL, 8x25mm AA. Flight deck, 2 lifts. [11 Claude (F), 8 Jean (T)] Up to 21 a/c
 Relegated to training carrier Jul 1942 due to inability to launch larger aircraft.
 Upgraded: (1944) removed 5.5-inch. 16x25mm. AAFF 16. Extended flight deck. Up to 15 a/c (incl. Zekes)
 (1941-42) Air Ops 21 9/3 9 CV (1944) Air Ops 15 7/2 7 CV. [2-1/2/1 Flat Top 7 3/1 3 CV]

CVL - *Ryujō* (1933): 11,340pts STF 32/21 TR D 29kn AAFF 56
 8x5-inch/40 DP, 4x25mm AA, 28xHMG. 1 flight & 2 hangar decks, 2 lifts (aft lift too small for Zeke a/c).
 Upgraded: (May 1942) 8x5-inch. 22x25mmAA. AAFF 46. 37 a/c normal (48 a/c max)
 Air Ops 48 15/6 12 CV [4-1/3/2 Flat Top 16 5/2 4 CV]

CVL - *Shōhō* (1939): 12,270pts STF 37/24 TR D 28kn AAFF 32
 8x5-inch/40 DP, 8x25mm AA. 1 flight & 1 hangar deck, 2 lifts. 24 a/c normal (30 a/c max)
 Air Ops 30 12/6 12 CV [3-1/2/2 Flat Top 10 4/2 4 CV]

CVL - *Zuihō* (1940): 12,270pts STF 37/24 TR D 28kn AAFF 32
 8x5-inch/40 DP, 8x25mm AA. 1 flight & 1 hangar deck, 2 lifts. 24 a/c normal (30 a/c max)
 Upgrades: (1943) 48x25mmAA. AAFF 72. (1944) 68x25mmAA. AAFF 92.
 Air Ops 30 12/6 12 CV [3-1/2/2 Flat Top 10 4/2 4 CV]

CVL - *Ryūhō* (Nov 1942): 13,900pts STF 39/26 TR A 26kn 6 DCs. AAFF 62
 8x5-inch/40 DP, 38x25mm AA. 1 flight & 1 hangar deck, 2 lifts. 24 a/c normal (31 a/c max)
 Upgrades: (1943) 42x25mmAA, 6xHMG.. AAFF 72. (Jun 1944) 61x25mmAA, 28xHMG. AAFF 113.
 Air Ops 30 12/6 12 CV [3-1/2/2 Flat Top 10 4/2 4 CV]

Escort Aircraft Carriers

CVE - *Taiyō* (Sep 1941): 16,150pts STF 32/21 TR A 21kn AAFF 32
 8x5-inch/40 DP, 8x25mm AA, 28xHMG. 1 flight & 1 hangar deck, 2 lifts. 23 a/c normal (27 a/c max)
 Upgraded: (1943) 24x25mmAA. AAFF 48. (Jul 1944) 4x5-inch/40 DP, 64x25mmAA, 10xHMG. AAFF 86.
 Air Ops 27 12/6 12 CV [3-1/2/1 Flat Top 9 4/2 4 CV]
 Others: *Unyō* (May 1942) & *Chūyō* (Nov 1942).

Seaplane Carriers

AV - *Chitose* (1938): 11,842pts STF 35/23 TR B 29kn AAFF 24
 4x5-inch/40 DP, 12x25mm AA. E8N2 Dave, F1M2 Dave & E13A1 Jake FPs. 24 floatplanes, 4 catapults.
 Upgraded: (1941) Up to 12 float planes & 12 Type A Midget Submarines. 2 catapults.
 (1942) Reverted to Up to 24 float planes. (Jan 1943 - Jan 1944) Converted to Fleet Carrier (CV).
 Air Ops 24 6/3 6 FP [3-1/2/2 Flat Top 8 2/1 2 FP]
 Others: *Chiyoda* (1938).

AV - *Mizuho* (1939): 11,780pts STF 35/23 TR B 22kn AAFF 36
 6x5-inch/40 DP, 18x25mm AA. 24 floatplanes, 4 catapults.
 Upgraded: (1941) Up to 12 float planes & 12 Type A Midget Submarines. 2 catapults. [sunk 2 May 1942]
 Air Ops 24 6/3 6 FP [3-1/2/1 Flat Top 8 2/1 2 FP]

AV - *Nisshin* (Feb 1942): 12,056pts STF 35/23 TR B 28kn AAFF 36
 6x5-inch/40 DP, 18x25mm AA. 12 Type A Midget Submarines. 12 floatplanes, 2 catapults.
 Upgraded: (July 1942) Converted to 12 float planes, & troop transport. [sunk 22 July 1943]
 Air Ops 12 3/3 3 FP [3-1/2/2 Flat Top 4 1/1 1 FP]

Seaplane Tenders

AV - *Akitsuushima* (Apr 1942): 5,950pts STF 21/14 TR B 19kn AAFF 16
 4x5-inch/40 DP, 4x25mm AA. ASDIC, 1 DCT, 6 DCs. H8K2 Emily FB. 1 flying boat, anchorage.

AV - *Kamikawa Maru* (1937/39): 6,853pts STF 26/17 TR A 19kn AAFF 08
 2x4.7-inch/45 AA, 2xHMG. 12 float planes normal, 2 catapults, (up to 24 FP ferry)
 Air Ops 24 3/3 3 FP [2-0/1/1 Flat Top 7 1/1 1 FP]

AV - *Kunikawa Maru* (1937/42): 6,853pts STF 26/17 TR A 19kn AAFF 10
 2x5.5-inch/50, 2x3-inch AA, 4xHMG. 12 float planes normal, 2 catapults, (up to 24 FP ferry)
 Air Ops 24 3/3 3 FP [2-0/1/1 Flat Top 7 1/1 1 FP]
 Others: *Kimikawa Maru* (1937/41) & *Kiyokawa Maru* (1937/41).

AV - *Sagara Maru* (1940/41): 7,189pts STF 26/17 TR A 20kn AAFF 08
 2x5.5-inch/50, 2x3-inch AA, 2xHMG. 8 float planes normal, 2 catapults, (upto 24 FP ferry)
 Air Ops 24 3/3 3 FP 6 Pete, 2 Dave FP. [2-0/1/1 Flat Top 7 1/1 1 FP]
 Others: *Kimikawa Maru* (1937/41) & *Kiyokawa Maru* (1937/41).

AV - *Sanyo Maru* (1930/41): 8,360pts STF 24/16 TR A 18kn AAFF 02
 2x5.5-inch/50, 2xHMG. 12 float planes normal, 2 catapults, (up to 24 FP ferry)
 Air Wings (Aug 1941) 6 Pete, 2 Jake & 2 Dave FPs.(Aug 1942) Rufe, Pete & Dave FP.
 Air Ops 24 3/3 3 FP [2-0/1/1 Flat Top 7 1/1 1 FP]
 Army Carriers (with Flight Decks)
 AV - *Akitsu Maru* (Jan 1942): 11,320pts STF 26/17 TR A 20kn AAFF 12
 10x3-inch BL, 2x3-inch AA, 6x25mm AA. 1 flight deck, 2 lifts. 8 a/c normal (20 a/c max. in store)
 Troop accomodation. Up to 20 daihatsu landing craft. Aircrfat in storage for delivery. 8 take off. No landings.
 Air Ops 8 3/3 3 CV No a/c landings. [3-1/2/1 Flat Top 3 1/1 1 CV]
 Other: *Nigitsu Maru* (Mar 1943) similar.

HEAVY CRUISERS

CA - *Furutaka* (1926/1939): 15,300pts STF 26/17 TR D 33kn 3/2/1/-/- AAFF 24
 6x8-inch/50, 4x4.7-inch/45 HA, 8x25mmAA, 4xHMG, 8x24-inch TT. 2 floatplanes, 1 catapult
 Others: *Kako* (1926/1939) *Furutaka* [sunk 11 Oct 1942], *Kako* [sunk 10 Aug 1942]
 CA - *Aoba* (1927/1940): 15,660pts STF 26/17 TR D 33kn 3/2/1/-/- AAFF 24
 6x8-inch/50, 4x4.7-inch/45 HA, 8x25mmAA, 4xHMG, 8x24-inch TT. 2 floatplanes, 1 catapult
 Upgrade: (July 1944) 42x25mmAA. AAFF 54.
 Others: *Kinugasa* (1927/1940) *Kinugasa* [sunk 14 Nov 1942]
 CA - *Myoko* (1929/1941): 20,500pts STF 29/19 TR D 34kn 4/2/1/-/- AAFF 32
 10x8-inch/50, 8x5-inch/40 DP, 8x25mmAA, 8x24-inch TT. 3 floatplanes, 2 catapults
 Upgrade: (July 1944) 52x25mmAA. AAFF 76.
 Others: *Nachi* (1928/1941), *Haguro* (1929/41), *Ashigara* (1929/1941) 3 off sunk 1944-45.
 CA - *Takao* (1932/1939): 20,990pts STF 29/19 TR D 34kn 5/2/1/-/- AAFF 36
 10x8-inch/50, 8x5-inch/40 DP, 8x25mmAA, 4xHMG, 16x24-inch TT. 3 floatplanes, 2 catapults
 Upgrade: (1944) 52x25mmAA. Remove HMG. AAFF 76.
 Others: *Atago* (1932/1939)
 CA - *Maya* (1932/1941): 20,990pts STF 29/19 TR D 34kn 5/2/1/-/- AAFF 48
 10x8-inch/50, 12x5-inch/40 DP, 8x25mmAA, 4xHMG, 16x24-inch TT. ASDIC & DCs. 3 floatplanes, 2 cat.
 Upgrade: (Mar 1944) 8x8-inch, 12x5-inch, 66x25mmAA. Remove HMG. AAFF 102.
 Others: *Chokai* (1932/1941). *Chokai* upgrades (1944) 26x25mm. AAFF 62. (1945) 60x25mm. AAFF 96.
 CA - *Mogami* (1935/1940): 20,030pts STF 29/19 TR D 35kn 6/2/1/-/- AAFF 32
 10x8-inch/50, 8x5-inch/40 DP, 8x25mmAA, 12x24-inch TT. 3 floatplanes, 2 catapults.
 Rebuilt as Seaplane Carrier Cruiser (CAV) in 1943.
 CAV - *Mogami* (1935/1943): 19,830pts STF 29/19 TR D 35kn 6/2/1/-/- AAFF 54
 6x8-inch/50, 8x5-inch/40 DP, 30x25mmAA, 12x24-inch TT. Up to 11 aircraft., 2 catapults.
 Rebuilt with 1/2 flight deck aft. Air ops. 11 4/2 4 SP. [7 2/2/2 Flat Top 2 1/1 1 SP]
 CA - *Mikuma* (1935/1940): 20,030pts STF 29/19 TR D 35kn 6/2/1/-/- AAFF 32
 10x8-inch/50, 8x5-inch/40 DP, 8x25mmAA, 12x24-inch TT. 3 floatplanes, 2 catapults.
 Upgrade: (Jul 1944) 50x25mmAA. AAFF 74.
 Others: *Suzuya* (1937/1941), & *Kumano* (1937/1940).
 CA - *Tone* (1938): 18,753pts STF 28/19 TR D 35kn 6/2/1/-/- AAFF 36
 8x8-inch/50, 8x5-inch/40 DP, 12x25mmAA, 12x24-inch TT. 5 floatplanes, 2 catapults.
 Upgrade: (Jun 1944) 57x25mmAA. AAFF 81. as CAV Air Ops 5 2/2 2 SP
 Others: *Chikuma* (1939). [6-2 2/2/2 Flat Top 2 1/1 1 SP]

LIGHT CRUISERS

CL - *Tenryu* (1919): 9,108pts STF 20/13 TR C 33kn 2/2/-/-/- AAFF 05
 4x5.5-inch/50, 1x3-inch/40 AA, 2xHMG, 8x24-inch TT.
 Others: *Tatsuta* (1919)
 Kuma class (5 off - two converted to torpedo cruisers)
 CL - *Kuma* (1920): 11,410pts STF 23/15 TR C 36kn 3/2/-/-/- AAFF 08
 7x5.5-inch/50, 2x3-inch/40 AA, 2xHMG, 8x24-inch TT. 1 floatplane, 1 catapult. (removed 1943)
 Upgrade: (Jul 1944) 5x5.5-inch/50, 2x5-inch AA, 44x25mmAA, 6xHMG, 8x24-inch TT. AAFF 56.
 Others: *Tama* (1921) & *Kiso* (1921).
 CL - *Oi* (1921): 11,410pts STF 23/15 TR C 36kn 3/2/-/-/- AAFF 08
 4x5.5-inch/50, 8x25mmAA, 40x24-inch TT, (10xQuad mounts). ASDIC, 2 DCR & 18 DCs. No a/c.
 Upgrade: (Sep 1942) 14x25mmAA, 36x24-inch TT. 2x Daihatsu Landing Craft (14m). AAFF 14.
 (1943) 4x5-inch/50 DP, 36x25mmAA, 40x24-inch TT. AAFF 48. [sunk 19 July 1944]

CL - *Kitakami* (1921): 11,410pts STF 23/15 TR C 36kn 3/2/-/- AAFF 08
 4x5.5-inch/50, 8x25mmAA, 40x24-inch TT,,(10xQuad mounts). ASDIC, 2 DCR & 18 DCs. No a/c.
 Upgrade: (Sep 1942) 10x25mmAA, 36x24-inch TT. 2xDaihatsu Landing Craft (14m). AAFF 14.
 (1944) 4x5-inch/50 DP, 10x25mmAA, 4xHMG, 24x24-inch TT. 4xDaihatsu. AAFF 26. Boiler removed 31kn.
 (1945) 4x5-inch/50 DP, 67x25mmAA, 8xKaiten midget submarines. AAFF 79. Speed 23kn.

Nagara class (6 off)

CL - *Nagara* (1922): 11,520pts STF 23/15 TR C 36kn 3/2/-/- AAFF 12
 7x5.5-inch/50, 2x3-inch/40 AA, 6xHMG, 8x24-inch TT. 1 floatplane, 1 catapult.
 Upgrade: (1943) 5x5.5-inch/50, 2x5-inch/40 DP, 22x25mmAA, 8x24-inch TT. AAFF 28. Boiler remov'd 33kn.
 Others: *Isuzu* (1923), *Yura* (1923), *Natori* (1922), *Kinu* (1922) & *Abukuma* (1925).

Sendai class (3 off)

CL - *Sendai* (1924): 11,545pts STF 23/15 TR C 35kn 3/2/-/- AAFF 08
 7x5.5-inch/50, 2x3-inch/40 AA, 2xHMG, 8x24-inch TT. Up to 80 mines. 1 floatplane, 1 catapult.
 Upgrade: (1943) 7x5.5-inch/50, 2x5-inch/40 DP, 44x25mmAA, 6xHMG, 8x24-inch TT. AAFF 56.
 Others: *Naka* (1925) & *Jintsu* (1925).

Yubari class (1 off)

CL - *Yubari* (1923): 8,080pts STF 20/13 TR C 35kn 2/1/-/- AAFF 05
 6x5.5-inch/50, 1x3-inch/40 AA, 2xHMG, 4x24-inch TT. Up to 34 mines.
 Upgrade: (1943) 8,720pts. 4x5.5-inch/50, 12x25mmAA, 8xHMG, 4x24-inch TT. AAFF 20. Speed 32kn.

Katori class (3 off)

CL - *Katori* (1940): 10,60pts STF 18/12 TR C 18kn No Armour AAFF 10
 4x5.5-inch/50, 2x5-inch/40 DP, 4x25mmAA, 4x24-inch TT. 1 floatplane, 1 catapult. (remov'd mid 1944)
 Upgrade: (1943) 4x5.5-inch, 6x5-inch DP, 20x25mmAA, 4x24-inch TT. AAFF 38. ASDIC, 2 DCRs & DCs.
 Others: *Kashima* (1940) & *Kashii* (1941).

Agano class (4 off)

CL - *Agano* (Oct 1942): 11,867pts STF 25/16 TR D 35kn 3/1/-/- AAFF 44
 6x6-inch/50, 4x3-inch/40 AA, 32x25mmAA, 8x24-inch TT. ASDIC, 2 DCR & 16 DCs. 2 f/planes, 1 catapult.
 Upgrade: (Jul 1944) 61x25mmAA. AAFF 73.
 Others: *Noshiro* (June 1943), *Yahagi* (Dec 1943) & *Sakawa* (Nov 1944).

Oyodo class (1 off completed remaining ceased during construction)

CL - *Oyodo* (Apr 1943): 17,280pts STF 28/18 TR D 36kn 3/2/1/-/2 AAFF 42
 6x6.1-inch/60, 8x3.9-inch/65 AA, 18x25mmAA. Up to 6 floatplanes, 1 large catapult.
 Upgrade: (1945) 52x25mmAA. AAFF 76.

MINELAYERS

ML - *Okinoshima* (1936): 8,820pts STF 17/11 TR C 20kn Up to 500 mines AAFF 08
 4x5.5-inch/50, 2x3-inch/40 AA, 2xHMG. ASDIC, 2 DCR & 22 DCs. 1 floatplane (Alf), 1 catapult.

ML - *Tsugaru* (1941): 8,590pts STF 18/12 TR C 20kn Up to 600 mines AAFF 16
 4x5-inch/50 DP, 4x25mmAA. ASDIC, 6 DCR, 1 DCT & 22 DCs. 1 floatplane (Alf), 1 catapult.

AML - *Koei Maru* (1934): 6,774pts STF 24/16 TR A 16kn Up to 500 mines AAFF 08
 2x3-inch/40 AA, 2x25mmAA.

DESTROYERS

Momi class (12 off, total during WWII)

DD - *Hasu* (1918): 1,275pts STF 12/8 TR B 36kn No sonar. AAFF 02
 3x4.7-inch (III), 2xMG, 4x21-inch TT.
 Others - *Kuri* & *Tsuga*.

DD - *Kiku* (1918/1941): 1,400pts STF 12/8 TR B 18kn AAFF 02
 2x4.7-inch (III), 6x25mmAA. Converted into Patrol Boats/Escorts ASDIC and up to 60 DCs
 Others: *Aoi*, *Hagi*, *Sutsuki*, *Tsuta*, *Fuji*, *Hishi*, *Yamagi* & *Taole*.

Wakatake class (6 off, 1922-24)

DD - *Wakatake* (1922): 1,350pts STF 12/8 TR B 35kn AAFF 02
 3x4.7-inch (III), 2xHMG, 4x21-inch TT. Served as 2nd Class Destroyers. ASDIC, 18 DCs
 Upgrades: (late 1941-42) 2x4.7-inch/50 DP, 6x25mm AA. AAFF 12.
 Converted into Patrol Boats/Escorts. Boiler removed, now 18kn. ASDIC, 4 DCT, up to 60 DCs
 Others: *Kuretake*, *Sanae*, *Fuyo*, *Karakaya* & *Asagao*.

Minekaze class (15 off, 1919-22)

DD - *Minekaze* (1919/1939): 2,328pts STF 14/9 TR B 36kn AAFF 08
 2x4.7-inch/50 DP, 2xHMG, 6x21-inch TT. Escort conversions (1937-39). ASDIC, 4 DCL, up to 36 DCs
 Others (12 off Escorts): *Okikaze*, *Hakaze*, *Yakaze*, *Akikaze*, *Shiokaze*, *Nokaze*, *Numakaze*, *Yukaze*, *Hokaze*,
Tachikaze & *Namikaze*.

DD - *Nadakaze* (1921/1940): 2,018pts STF 14/9 TR B 20kn AAFF 15
1x4.7-inch/50 DP, 10x25mm AA, 2xHMG, 2xDaihatsu LC, 250 troops. ASDIC, up to 18 DCs
Others (2 off Destroyer Transports): *Shimakaze*. Transport conversions (1940-41).

DD - *Sawakaze* (1921/1941): 2,018pts STF 14/9 TR B 16kn AAFF 13
Unarmed aircraft repair ship (1939-1941). Then patrol vessel conversion (1941).
1x4.7-inch/50 DP, 10x25mm AA, 1x5.9-inch A/S rocket launcher (wire).

Kamikaze class (9 off, 1922-25, Modernisation 1941-42)

DD - *Kamikaze* (1922/1941): 2,285pts STF 14/9 TR B 36kn AAFF 19
3x4.7-inch/50 DP, 10x25mm AA, 4x21-inch TT. ASDIC, up to 18 DCs.
Upgrade: (Jun 1944) 3x4.7-inch, 20x25mm, 4x21-inch. AAFF 29. Actual max. speed 34kn.
Others: *Asakaze*, *Harakaze*, *Matsukaze*, *Hatakaze*, *Oite*, *Hayate*, *Asamagi* & *Yunagi*.

Mutsuki class (12 off, 1925-27, Modernisation 1941-42)

DD - *Mutsuki* (1926/1941): 1,973pts STF 15/10 TR B 36kn AAFF 16
4x4.7-inch/50 DP, 4xHMG, 6x24-inch TT. ASDIC, up to 18 DCs.
Upgrade: (Sep 1944) 2x4.7-inch, 16x25mm, 3x24-inch TT. AAFF 22. ASDIC, up to 36 DCs.
Others (6 off Destroyers): *Kisaragi*, *Yayoi*, *Uzuki*, *Mochizuki* & *Yuzuki*.

DD - *Satsuki* (1925/1940): 2,385pts STF 15/10 TR B 34kn AAFF 28
1x4.7-inch/50 DP, 20x25mm AA, 5xHMG, 2xDaihatsu landing craft.
Upgrade: (1943) ASDIC, 4 DCL, up to 36 DCs.
Others (6 off Fast Transports): *Minuzuki*, *Fumuzuki*, *Nagatsuki*, *Kikusuki* & *Mikazuki*.

Fubuki class (19 off, 1928-31, Rebuilt 1935)

DD - *Fubuki* (1928): 3,135pts STF 16/11 TR C 34kn AAFF 20
6x5-inch/50 DP, 2xHMG, 9x24-inch TT. Up to 18 mines or ASDIC, up to 18 DCs.
Upgrade: (Jun 1944) 4x5-inch, 22x25mm, 10xHMG, 9x24-inch TT. AAFF 44. ASDIC, up to 36 DCs.
Others: 19 remaining in service by Dec 1941.

Akatsuki class (4 off, 1932-33, Rebuilt 1935-37)

DD - *Akatsuki* (1932): 2,970pts STF 16/11 TR C 34kn AAFF 20
6x5-inch/50 DP, 2xHMG, 9x24-inch TT. Up to 18 mines or ASDIC, up to 18 DCs.
Upgrade: (Jun 1944) 4x5-inch, 22x25mm, 10xHMG, 9x24-inch TT. AAFF 44. ASDIC, up to 36 DCs.
Others: *Hibiki*, *Ikazuchi* & *Inazuma*.

Hatsuharu class (6 off, 1933-35, Rebuilt 1935-37)

DD - *Hatsuharu* (1933): 2,572pts STF 15/10 TR C 33kn AAFF 17
5x5-inch/50 DP, 2xHMG, 6x24-inch TT. ASDIC, up to 18 DCs.
Upgrade: (1943) 4x5-inch, 21x25mm, 4xHMG, 6x24-inch TT. AAFF 37. ASDIC, up to 36 DCs.
Others: *Nenohi*, *Hatsushimo*, *Wakaba*, *Yugure* & *Ariake*.

Shiratsuyu class (10 off, 1936-37)

DD - *Shiratsuyu* (1936): 2,528pts STF 15/10 TR C 34kn AAFF 17
5x5-inch/50 DP, 2xHMG, 8x24-inch TT. ASDIC, up to 16 DCs.
Upgrade: (1943) 4x5-inch, 21x25mm, 4xHMG, 8x24-inch TT. AAFF 37. ASDIC, up to 36 DCs.
Others: *Shigure*, *Marasame*, *Yudachi*, *Samidare*, *Harusame*, *Yamakaze*, *Kawakaze*, *Umikaze*, *Suzukaze*.

Asashio class (10 off, 1937-39)

DD - *Asashio* (1937): 3,555pts STF 17/11 TR C 35kn AAFF 22
6x5-inch/50 DP, 4x25mm AA, 8x24-inch TT. ASDIC, up to 16 DCs.
Upgrade: (1943/44) 4x5-inch, 28x25mm, 4xHMG, 8x24-inch TT. AAFF 44. ASDIC, up to 36 DCs.
Others: *Oshio*, *Michishio*, *Arashio*, *Natsugumo*, *Yamagumo*, *Minegumo*, *Asagumo*, *Arare* & *Kasumi*.

Kagero class (18 off, 1939-41)

DD - *Kagero* (1939): 3,735pts STF 17/11 TR C 35kn AAFF 22
6x5-inch/50 DP, 4x25mm AA, 8x24-inch TT. ASDIC, up to 16 DCs.
Upgrade: (1943/44) 4x5-inch, 24x25mm, 4xHMG, 8x24-inch TT. AAFF 40. Type 22 radar. Up to 36 DCs.
Others: *Kuroshio*, *Oyashio*, *Hatsukaze*, *Natsushio*, *Yukikaze*, *Hayashio*, *Maikaze*, *Isokaze*, *Shiranui*,
Amatsukaze, *Tokitsukaze*, *Urakaze*, *Hamakaze*, *Nowaki*, *Arashi*, *Hagikaze* & *Tanikaze*.

Shimakaze class (1 off completed)

DD - *Shimakaze* (May 1943): 4,572pts STF 18/12 TR C 39kn AAFF 24
6x5-inch/50 DP, 6x25mm AA, 15x24-inch TT (3x5 tube launchers). ASDIC and up to 12 DCs
Upgrade: (Jun 1944) 4x5-inch/50, 28x25mm AA, 4xHMG, 15x24-inch TT. AAFF 44. Up to 36 DCs.

Yugumo class (20 off, 1941-44)

DD - *Yugumo* (1941): 3,780pts STF 17/11 TR C 35kn AAFF 22
6x5-inch/50 DP, 4x25mm AA, 8x24-inch TT. ASDIC and up to 36 DCs
Upgrade: (Jun 1944) 4x5-inch/50, 28x25mm AA, 4xHMG, 8x24-inch TT. AAFF 44.
Others completed: 1941 x 2, 1942 x 6, 1943 x 9, 1944 x 3.

Akizuki class (12 off, 1942-45)

DD - *Akizuki* (Jun 1942): 5,227pts STF 19/12 TR C 33kn Type 31 radar AAFF 28
8x3.9-inch/65 DP, 4x25mmAA, 4x24-inch TT. ASDIC and up to 72 DCs

Matsu class (18 off, 1944-45)

DD - *Matsu* (Apr 1944): 2,295pts STF 14/9 TR C 27kn Type 31 radar AAFF 33
3x5-inch/40 AA, 24x25mmAA, 4x24-inch TT. ASDIC and up to 36 DCs

TORPEDO BOATS

Tomozuru / Chidori class (4 off, 1933-34)

TB - *Tomozuru* (1934): 976pts STF 11/7 TR B 30kn AAFF 10
3x4.7-inch/50 DP, 1xHMG, 2x21-inch TT. ASDIC, up to 48 DCs.

Upgrade: (1942) 2x4.7-inch, 10x25mm AA, 2x21-inch TT. AAFF 16.

Others – *Chidori*, *Manazuru* & *Hatsukari*.

Otori class (8 off, 1936-37)

TB - *Otori* (1936): 1260pts STF 12/8 TR B 30kn AAFF 12
3x4.7-inch/50 DP, 1x40mm, 1xHMG, 3x21-inch TT. ASDIC, up to 48 DCs.

Upgrade: (1943/44) 2x4.7-inch, 11x25mm AA, 3x21-inch TT. AAFF 17.

Others – *Kasasagi*, *Hiyodari*, *Hayabusa*, *Hato*, *Sagi*, *Kari* & *Kiji*.

SUBMARINES

Vickers L Type 4 class (9 off) - Coastal Submarines

SM - *RO.60* (1923): 1983pts STF 11/7 TR C 16kn, 8kn (submerged) Test depth 195ft
Submerged: 6x21-inch TT (bow) with 10 TTs. Surface: 1x3-inch/40, 1xHMG. AAFF 04
Radio, hydrophones, ASDIC. Crash dive 45 sec. 5,500nm@10kn surface. 80nm@4kn submerged.
Others: (1922-26): *RO.60* - *RO.68*. From 1943 employed as training boats.

Kaichu Type 5 class (2 off) - Coastal Submarines

SM - *RO.33* (1935): 1800pts STF 10/7 TR C 19kn, 8kn (submerged) Test depth 246ft
Submerged: 4x21-inch TT (bow) with 10 TTs. Surface: 1x3-inch/40, 2x25mm AA. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 45 sec. 8,000nm@2kn surface. 90nm@3kn submerged.
Other: *RO.34* (1937).

Kaichu Type 6 class (18 off) - Coastal Submarines

SM - *RO.35* (Mar 1943): 2179pts STF 11/7 TR C 19.5kn, 8kn (submerged) Test depth 246ft
Submerged: 4x21-inch TT (bow) with 8 TTs. Surface: 1x3-inch/40, 2x25mm AA. AAFF 05
Radio, hydrophones, ASDIC. Crash dive 45 sec. 5,000nm@16kn surface. 45nm@5kn submerged.
Others: (1943-45) *RO.35* - *RO.50*, *RO.55* & *RO.56*. (Others not completed).

Kaisho Type (18 off) - Coastal Submarines

SM - *RO.100* (Sep 1942): 1092pts STF 8/5 TR C 14kn, 8kn (submerged) Test depth 246ft
Submerged: 4x21-inch TT (bow) with 8 TTs. Surface: 2x25mm AA or 1x3-inch/40. AAFF 02 or 03
Radio, hydrophones, ASDIC. Crash dive 45 sec. 3,500nm@12kn surface. 60nm@3kn submerged.
Others: (1943-45) *RO.100* - *RO.117*. (Others not completed).

Sen-Taka-Sho Type (7 off completed) - High Speed Coastal Submarines

SM - *Ha.201* (May 1945): 660pts STF 7/5 TR C 10kn, 13kn (submerged) Test depth 328ft
Submerged: 2x21-inch TT (bow) with 4 TTs. Surface: 1xMG. AAFF 01.
Patrols up to 15 days duration. Radio, hydrophones, ASDIC. Radar and snorkle.
Crash dive 30 sec. 3,000nm@10kn surface. 100nm@2kn submerged. [equiv. German Type XXIII U-boat]
Others: (1945) *Ha.201* - *Ha.205*, *Ha.209*, *Ha.210*. (Others not completed).

Kaidai Type 2 (1 off) - Fleet Submarine

SM - *I.52* (1925): 3750pts STF 14/9 TR C 22kn, 10kn (submerged) Test depth 195ft
Submerged: 8x21-inch TT (6 bow, 2 aft) with 16 TTs. Surface: 1x4.7-inch/40, 1x3-inch/40. AAFF 06.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,000nm@10kn surface. 100nm@4kn submerged.
On 20 May 1942 renamed *I.152*.

Kaidai Type 3A (4 off) - Fleet Submarines

SM - *I.53* (1927): 3450pts STF 14/9 TR C 20kn, 8kn (submerged) Test depth 200ft
Submerged: 8x21-inch TT (6 bow, 2 aft) with 16 TTs. Surface: 1x4.7-inch/40. AAFF 03.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,000nm@10kn surface. 90nm@3kn submerged.
Others: (1927-28) *I.53* - *I.55* & *I.58*. On 20 May 1942 renamed *I.153* - *I.155* & *I.158*.

Kaidai Type 3B (4 off) - Fleet Submarines

SM - *I.56* (1929): 3450pts STF 14/9 TR C 20kn, 8kn (submerged) Test depth 200ft
Submerged: 8x21-inch TT (6 bow, 2 aft) with 16 TTs. Surface: 1x4.7-inch/40. AAFF 03.

Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,000nm@10kn surface. 90nm@3kn submerged.
Others: (1928-30) *I.56, I.57, I.59, & I.60*. On 20 May 1942 renamed *I.156, I.157 & I.159*. [I.63 lost 1939]

Kaidai Type 4 (3 off) - Fleet Submarines
SM - *I.61* (1929): 3450pts STF 14/9 TR C 20kn, 8kn (submerged) Test depth 200ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 14 TTs. Surface: 1x4.7-inch/40. AAFF 03.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,800nm@10kn surface. 60nm@3kn submerged.
Others: (1929-30) *I.61, I.62 & I.64*. On 20 May 1942 renamed *I.161, I.162 & I.164*.

Kaidai Type 5 (2 off) - Fleet Submarines
SM - *I.65* (1932): 3495pts STF 14/9 TR C 20kn, 8kn (submerged) Test depth 246ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 14 TTs. Surface: 1x3.9-inch/50 AA, 1xHMG. AAFF 04.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,800nm@10kn surface. 60nm@3kn submerged.
Others: (1932) *I.65 & I.66*. On 20 May 1942 renamed *I.165 & I.166*. [I.67 lost in accident 1940]

Kaidai Type 6A (5 off) - Fleet Submarines
SM - *I.68* (1934): 3660pts STF 15/10 TR C 23kn, 8kn (submerged) Test depth 246ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 14 TTs. Surface: 1x3.9-inch/50 AA, 1xHMG. AAFF 04.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@10kn surface. 65nm@3kn submerged.
Upgrade: (late 1942) *I.171* converted to transport submarine. 1 Daihatsu LC replaced 3.9-inch.
Others: (1934-37) *I.68 - I.73*. On 20 May 1942 renamed *I.168 - I.173*. [except *I.70* sunk Dec 1941]

Kaidai Type 6B (2 off) - Fleet Submarines
SM - *I.74* (1938): 3846pts STF 15/10 TR C 23kn, 8kn (submerged) Test depth 278ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 14 TTs. Surface: 1x4.7-inch/40, 2xHMG. AAFF 05.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,000nm@16kn surface. 65nm@3kn submerged.
Other: (1938) *I.74 & I.75*. On 20 May 1942 renamed *I.174 & I.175*.

Kaidai Type 7 (10 off) - Fleet Submarines
SM - *I.176* (1942): 3903pts STF 15/10 TR C 23kn, 8kn (submerged) Test depth 278ft
Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x4.7-inch/40, 2x25mm AA. AAFF 05.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 8,000nm@16kn surface. 50nm@5kn submerged.
Upgrades: (late 1942) *I.176, I.178 & I.181* converted to transport submarines. 1 Daihatsu LC replaced 4.7-inch.
Other: (1942-43) *I.176 - I.185*.

Sen-Taka Type (3 off completed) - High Speed Fleet Submarines
SM - *I.201* (Feb 1945): 2175pts STF 11/7 TR C 16kn, 19kn (submerged) Test depth 360ft
Submerged: 4x21-inch TT (bow) with 10 TTs. Surface: 2x25mm AA. AAFF 02.
Patrols up to 25 days duration. Radio, hydrophones, ASDIC. Radar and snorkle. Crash dive 30 sec.
5,800nm@14kn surface. 135nm@3kn & 17nm@19kn submerged. [equiv. German Type XXI U-boat]
Others: (1945) *I.201 - I.203*. (Others not completed).

Junsen Type 1 (4 off) - Submarine Cruisers
SM - *I.1* (1926): 6281pts STF 14/9 TR C 18kn, 8kn (submerged) Test depth 256ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 20 TTs. Surface: 2x5.5-inch/50. AAFF 06. Patrol up to 60 days.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 24,400nm@10kn surface. 60nm@3kn submerged.
Upgrade: (1942) modified to carry 1 x midget submarine or Daihatsu landing craft.
Others: (1926-29) *I.1 - I.4*.

Junsen Type 1M (1 off) - Submarine Cruiser
SM - *I.5* (1932): 6291pts STF 14/9 TR C 18kn, 8kn (submerged) Test depth 256ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 20 TTs. Surface: 2x5.5-inch/50. AAFF 06.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 24,400nm@10kn surface. 60nm@3kn submerged.

Junsen Type 2 (1 off) - Submarine Cruiser
SM - *I.6* (1935): 6581pts STF 14/9 TR C 20kn, 7.5kn (submerged) Test depth 256ft
Submerged: 6x21-inch TT (4 bow, 2 aft) with 17 TTs. Surface: 1x5-inch/40, 1xHMG. AAFF 04.
Patrol up to 60 days. Hangar and catapult for a/c. 1xE9W-1 Slim floatplane. [1st a/c catapult on submarine]
Radio, hydrophones, ASDIC. Crash dive 45 sec. 20,000nm@10kn surface. 60nm@3kn submerged.

Junsen Type 3 (2 off) - Submarine Cruisers
SM - *I.7* (1937): 7378pts STF 15/10 TR C 23kn, 8kn (submerged) Test depth 328ft
Submerged: 6x21-inch TT (6 bow) with 21 TTs. Surface: 1x5-inch/40, 2xHMG. AAFF 05.
Patrol up to 90 days. Hangar and catapult for a/c. 1xE9W-1 Slim floatplane.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@16kn surface. 60nm@3kn submerged.
Other: (1937 & 1938) *I.7 & I.8*.

Type A, class 1 (3 off) - Submarine Cruisers
SM - *I.9* (1941): 8129pts STF 16/10 TR C 23.5kn, 8kn (submerged) Test depth 328ft
Submerged: 6x21-inch TT (6 bow) with 18 TTs. Surface: 1x5-inch/40, 4x25mm AA. AAFF 07.
Patrol up to 90 days. Hangar and catapult for a/c. 1xE9W-1 Slim floatplane.
Radio, hydrophones, ASDIC. Crash dive 45 sec. 16,000nm@16kn surface. 60nm@3kn submerged.

Others: (1941-1942) *I.9 - I.11*.

Type A, class 2 (1 off) - Submarine Cruiser

SM - *I.12* (Apr 1944): 8152pts STF 16/10 TR C 17.5kn, 6kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (6 bow) with 18 TTs. Surface: 1x5.5-inch/40, 4x25mm AA. AAFF 07.
 Hangar and catapult for a/c. 1xE9W-1 Slim floatplane.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 22,000nm@16kn surface. 75nm@3kn submerged.

Modified Type A, class 2 (2 off) - Submarine Cruisers

SM - *I.13* (Dec 1944): 8542pts STF 16/10 TR C 16.5kn, 5.5kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (6 bow) with 12 TTs. Surface: 1x5.5-inch/50, 5x25mm AA. AAFF 08.
 Radar & snorkle. Hangar and catapult for 2 a/c. 2xM6A-1 Serian floatplane bombers.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 21,000nm@16kn surface. 60nm@3kn submerged.
 Other: *I.14* (Mar 1945).

Type B, class 1 (20 off) - Submarine Cruisers

SM - *I.15* (1940): 7454pts STF 15/10 TR C 23.5kn, 8kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (6 bow) with 17 TTs. Surface: 1x5.5-inch/50, 2x25mm AA. AAFF 05.
 Hangar and catapult for a/c. 1xE14Y-1 Glen floatplane.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@16kn surface. 96nm@3kn submerged.
 Others: (1940-1943) *I.15, I.17, I.19, I.21, I.23, I.25 - I.39*.

Type B, class 2 (6 off) - Submarine Cruisers

SM - *I.40* (Jul 1943): 7500pts STF 15/10 TR C 23.5kn, 8kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (6 bow) with 17 TTs. Surface: 1x5.5-inch/50, 2x25mm AA. AAFF 05.
 Hangar and catapult for a/c. 1xE14Y-1 Glen floatplane.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@16kn surface. 96nm@3kn submerged.
 Others: (1943-1944) *I.40 - I.45*.

Type B, class 3 (3 off) - Submarine Cruisers

SM - *I.54* (Mar 1944): 7488pts STF 15/10 TR C 17.5kn, 6.5kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (6 bow) with 19 TTs. Surface: 1x5.5-inch/50, 2x25mm AA. AAFF 05.
 Patrol up to 90 days. Type 22 radar. Hangar and catapult for a/c. 1xE14Y-1 Glen floatplane.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 21,000nm@16kn surface. 105nm@3kn submerged.
 Others: (1943-1944) *I.54, I.56 & I.58*.

Type C, class 1 (5 off) - Submarine Cruisers

SM - *I.16* (1940): 7351pts STF 15/10 TR C 23.5kn, 8kn (submerged) Test depth 328ft
 Submerged: 8x21-inch TT (8 bow) with 20 TTs. Surface: 1x5.5-inch/50, 4x25mm AA. AAFF 07.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@16kn surface. 60nm@3kn submerged.
 Others: (1940-1941) *I.16, I.18, I.20, I.22 & I.24*.

Type C, class 2 (3 off) - Submarine Cruisers

SM - *I.46* (Feb 1944): 7354pts STF 15/10 TR C 23.5kn, 8kn (submerged) Test depth 328ft
 Submerged: 8x21-inch TT (8 bow) with 20 TTs. Surface: 1x5.5-inch/50, 4x25mm AA. AAFF 07.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 14,000nm@16kn surface. 60nm@3kn submerged.
 Others: (1944-1945) *I.46 - I.48*.

Type C, class 3 (3 off) - Submarine Cruisers

SM - *I.52* (Dec 1943): 7444pts STF 15/10 TR C 17.5kn, 6.5kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (8 bow) with 19 TTs. Surface: 2x5.5-inch/50, 4x25mm AA. AAFF 10.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 21,000nm@16kn surface. 105nm@3kn submerged.
 Others: (1943-1944) *I.52, I.53 & I.55*.

Kirai-Sen Type (4 off) - Minelayer/Aviation Fuel Tanker Submarines

SM - *I.21* (1927): 2652pts STF 12/8 TR C 14.5kn, 7kn (submerged) Test depth 246ft
 Submerged: 4x21-inch TT (4 bow) with 12 TTs. Surface: 1x5.5-inch/50. AAFF 03. Up to 42 mines or torps.
 Radio, hydrophones, ASDIC. Crash dive 45 sec. 10,500nm@8kn surface. 40nm@4.5kn submerged.
 Others: (1927-28) *I.21 - I.24*. On 20 May 1942 renamed *I.121 - I.123*. [I.24 sunk 20 Jan 1942]

Sen-Yu-Sho Type (10 off completed) - Support Submarines (Supply Missions)

SM - *Ha.101* (Nov 1944): 740pts STF 6/4 TR C 10kn, 5kn (submerged) Test depth 300ft
 Surface: 1x25mm AA. AAFF 01. Crash dive 45 sec. 3,000nm@10kn surface. 46nm@2.3kn submerged.
 Patrols up to 15 days duration. 60tons cargo.
 Others: (1944-45) *Ha.101 - Ha.109, Ha.111*. (Others not completed).

D Type 1 class (12 off) - Transport Submarine (Landing Craft & Troops)

SM - *I.361* (May 1944): 3322pts STF 10/7 TR C 13kn, 6.5kn (submerged) Test depth 246ft
 Surface: 1x5.5-inch/40, 2x25mm AA. AAFF 05. 2x13m Daihatsu landing craft, 4xrubber dinghies, 110 men.
 82tons cargo (62t internal, 20t external). Radio, hydrophones, ASDIC.
 Crash dive 60 sec. 15,000nm@10kn surface. 120nm@3kn submerged.

Upgrades: (1945) 2xKaiten submarines. (5.5-inch removed). [I.361, I.363, I.366-370 & I.372]
Others: (1944-45) I.361 - I.372.

D Type 2 class (1 off) - Transport Submarine (Landing Craft & Troops)

SM - I.373 (Apr 1945): 3360pts STF 10/7 TR C 13kn, 6.5kn (submerged) Test depth 328ft
Surface: 1x5.5-inch/40, 2x25mm AA. AAFF 05. 1x13m Daihatsu landing craft.
110tons cargo (100t internal, 10t external), 150tons gasoline. Radio, hydrophones, ASDIC.
Crash dive 60 sec. 15,000nm@10kn surface. 120nm@3kn submerged.

Yu.1 class (24 off) Japanese Army Transport Submarines. (Type 3 Submergence Transport Boat)

SM - Yu.1 (Oct 1943): 555pts STF 6/4 TR A 10kn, 5kn (submerged) Test depth 328ft
Surface: 1x37mm AA. AAFF 01. Up to 40tons cargo. 1,500nm@8kn surface. 32nm@4kn submerged.
Others: (1943-45) Yu.1 - Yu.24. (Others not completed).

Yu.1001 class (10 off) Japanese Army Transport Submarines. (Type 3 Submergence Transport Boat)

SM - Yu.1001 (1944): 823pts STF 7/4 TR A 14.5kn, 5kn (submerged) Test depth 328ft
Surface: Nil. Up to 40tons cargo. 1,500nm@8kn surface. 32nm@4kn submerged.
Others: (1944-45) Yu.1001 - Yu.1010. (Others not completed). Also Yu.2001 & Yu.2002, Yu.3001. completed.

Sen-Ho Type class (1 off completed) - Support Submarine (Tanker/Replenishment)

SM - I.351 (Jan 1945): 8220pts STF 16/10 TR C 15.5kn, 6.5kn (submerged) Test depth 315ft
Submerged: 4x21-inch TT (bow) with 4 TTs. Surface: 4x3-inch mortars, 7x25mm AA. AAFF 07.
Patrols up to 60 days duration. 390tons cargo, [365t petrol, 11t fresh water, 60x550lb bombs].
Radio, hydrophones, ASDIC. Crash dive 60 sec. 13,000nm@14kn surface. 100nm@3kn submerged.

Sen-Toku Type class (3 off completed) - Large Aircraft Carrying Submarines

SM - I.400 (Dec 1944): 10,890pts STF 17/11 TR C 18.5kn, 6.5kn (submerged) Test depth 328ft
Submerged: 8x21-inch TT (bow) with 20 TTs. Surface: 1x5.5-inch/40 DP, 10x25mm AA. AAFF 13.
Patrols up to 90 days duration. Aichi M6A-1 Serian FPs. 3 floatplanes bombers, hangar, 1 catapult.
Radio, hydrophones, ASDIC. Crash dive 60 sec. 37,500nm@14kn surface. 60nm@3kn submerged.
Others: (1944-45) I.400 - I.402. (Others not completed).

[Foreign submarines: a number of German submarines were transferred to the IJN in 1943, & after Apr 1945]

MIDGET SUBMARINES

Midget Submarines Type A (60 off)

SM - Ha 1 (1936): 69pts STF 3/2 TR A 23kn, 19kn (submerged)
Submerged: 2x18-inch TT (bow). 55nm@19kn surface, 80nm@6kn submerged. Electric motor only.
Others: (1936-42) Ha.1 - Ha.52, Ha.54 - Ha.61. [22 used offensively 1941-42]. Two man crew.

Midget Submarines Kaiten Type 1 (60 off)

SM - Kaiten Type 1 (1944): 12pts STF 2/1 TR A 30kn (submerged)
Charge: 1x3,420lb. 45nm@12kn submerged. One Type 93 torpedo motor. One man crew.

MINESWEEPERS

Wa1 class (22 off, 1942-43) - [Coral Sea Wa1, Wa2 & Wa20].

AMS - Wa1 (Jan 1942): 333pts STF 4/2 TR A 9kn Wooden hull trawlers AAFF 04
1x3-inch AA, 1xHMG. ASDIC, Up to 6 DCs. Minesweeping gear.

Auxiliary Minesweepers (requisitioned trawlers & whalers)

AMS - Hagoromo Maru (1920): 234pts STF 4/2 TR A 10 kn Trawlers & whalers AAFF 04
1x3-inch AA, 1xHMG. ASDIC, Up to 6 DCs. Minesweeping gear.

Others: Noshiro Maru (1927) 216pts, Tama Maru (1936) 264pts, Fumi Maru (1939) 304pts,
& Seki Maru (1939) 304pts.

AMPHIBIOUS VESSELS

T.1 Type, Fast Transports (21 completed, 1944-45)

T.1 (May 1944): 2,700ts STF 14/9 TR C 22kn AAFF 21
2x5-inch/40 AA, 15x25mm AA. Stern rollers for launching landing craft or amphibious tanks.
Capacity: 480 marines & 500t of cargo, or 4 Daihatsu landing craft & 260t, or 7 Type 2 amphibous tanks
& 220t, or 2 Koryu midget submarines & 184t, or 6 Kaiten human torpedoes & 243t of cargo.
Others: T.1 to T.21.

T.103 Type, Landing Ship Tank (about 160 completed, 1944-45)

T.103 (June 1944): 1,530ts STF 12/8 TR B 16kn AAFF 09
1x3.1-inch/40 AA, 6x25mm AA. Bow ramp for vehicles.
Capacity: 218t of cargo, or 120 marines & 67t, or 14 Type 95 light tanks, or 9 Type 97 medium tanks,
or 7 Type 2 amphibous tanks.
Others: T.101 to T.161, not continuous builds - many lost before completion.

Auxiliary Amphibious Transports (1 off, 1935)

Shiushu Maru (1935): 12,700ts STF 27/18 TR B 19kn AAFP 28
 8x3-inch/40 AA, 4x20mm..Up to 20 Daihatsu landing craft launched through stern doors, or by crane forward.
 Capacity: 2,200 troops. World's first landing ship. [2 catapults (not installed).. Up to 26 small floatplanes].

Landing Craft (1942-45, over 23,000 built)

Shohatsu 10-metre (1927-43) 7pts STF 2/1 7kn 1xMG. Carrying 35 men or 3.5 tons. Over 1,000 built.
 Chuhatsu 13-m (1944) 23pts STF 2/1 8kn 1xMG. Carrying 60 men or 10 tons. Bow ramp. 3 off.
 Moko Daihatsu 15-m (1944-45) 26pts STF 2/1 8kn 1xMG. Wooden. Carrying 80 men or 8 tons.
 Bow ramp. Over 1,140 built.
 Daihatsu 14-m (1935-45) 32pts STF 2/1 8kn 2x25mm or 2xMG. Carrying 70 men, 1 tank or
 10 tons. Bow ramp. Over 4,550 built.
 Toku Daihatsu 17-m (1943-45) 56pts STF 3/2 10kn 3x25mm or 3xMG. Carrying 100 men, 1 tank or
 10 tons. Bow ramp. Over 163 built.

AUXILIARY GUNBOATS

PG - *Keijo Maru* (1939): 2,626pts STF 16/10 TR A 14kn Converted Auxiliary AAFP 08
 2x4.7-inch AA, 2xHMG. ASDIC, Up to 6 DCs.
 Others: *Seikai Maru* (1940) 2,693pts, & *Nikkai Maru* (1938) 2,562pts.

AUXILIARY SUBCHASERS

PG - *Tama Maru No 8* (1936): 279pts STF 4/2 TR A 8kn Trawlers & whalers AAFP 04
 1x3-inch AA, 1xHMG. ASDIC, Up to 6 DCs.
 Others: *Toshi Maru No 3* (1937) 298pts.

SALVAGE TUGBOATS

ATF - *Oshima* (1939): 812pts STF 9/6 TR A 15kn AAFP 02
 2x25mm AA. ASDIC, Up to 6 DCs.

OIL TANKERS

AO - *Irō* (1922): 13,682pts STF 26/17 TR A 17kn AAFP 06
 2x5.5-inch/50, 2x3-inch AA. Fuel capacity: 8,000 tons.

Auxiliary Fleet Oiler Tankers

AO - *Hoyo Maru* (1936): 8,691pts STF 26/17 TR A 16kn AAFP 06
 2x3-inch AA. Fuel capacity: about 5,000 tons.

AO - *Kyokuto Maru* (1934): 10,051pts STF 27/18 TR A 19kn AAFP 03
 1x4.7-inch DP. Fuel capacity: about 5,000 tons.

Others: *Toho Maru* (1936) & *Toa Maru* (1934).

TRANSPORTS

Requisitioned by the Imperial Japanese Navy 1941

Azumasen Maru (1933): 7,624pts STF 23/16 TR A 18kn
Akibasan Maru (1924): 4,714pts STF 21/14 TR A 14kn
Shoka Maru (1935): 4,468pts STF 19/13 TR A 16kn
Goyo Maru (1939): 8,469pts STF 24/16 TR A
Chowa Maru (1940): 2,748pts STF 17/11 TR A 14kn
Mogamigawa Maru (19--): 7,497pts STF 24/16 TR A 16kn

Requisitioned by the Imperial Japanese Army 1941

China Maru (1920): 5,870pts STF 21/14 TR A 14kn
Hibi Maru (1921): 5,873pts STF 21/14 TR A 14kn
Asaka Maru (1937): 7,399pts STF 26/17 TR A 19kn
Matsue Maru (1938): 5,644pts STF 22/14 TR A 14kn
Taifuku (Daifuku) Maru (1916): 5,869pts STF 21/14 TR A 14kn
Mito Maru (1921): 7,061pts STF 24/16 TR A

NORWEGIAN SHIP CHARACTERISTICS

PRE-DREADNOUGHT BATTLESHIPS

BB - *Eidsvold* (1901): 9013pts STF 13/9 TR D 17kn 7/2/8/8/6 AAFF 08
 2x8.26-inch SKL/45, 6x5.9-inch SKL/45, 6x3-inch (12pdr), 2x7.6cm, 2x20mmAA, 2xMG.
 Other: HMNoMS *Norge* (1901). [both sunk at Narvik 9 Apr 1940]

DESTROYERS & TORPEDO BOATS

Draug class (3 off)

DD - *Draug* (1908): 868pts STF 10/6 TR B 26kn No sonar. AAFF 01
 6x3-inch (12pdr), 1xMG, 3x17.7-inch TT.
 Others - *Troll* (1912), & *Garm* (1914).
 Up to 4 DC.

Sleipner class (4 off)

DD - *Odin* (1939): 1102pts STF 10/7 TR B 32kn No sonar. AAFF 02
 3x4-inch BL, 1x20mmAA, 1xMG, 2x21-inch TT.
 Others - *Sleipner* (1936), *Arger* (1936), & *Gylfer* (1938) - two more completed by Germans under occupation.
 Up to 4 DC.

Snøgg class (3 off)

DD - *Snøgg* (1920): 384pts STF 7/5 TR A 25kn No sonar or DCs. AAFF 01
 2x3-inch (76mm), 1x20mm, 4x17.7-inch TT.
 Others - *Stegg* (1921), & *Trygg* (1920).

MINELAYERS & MINESWEEPERS

ML - *Olav Tryggvason* (1934): 2394pts STF 14/9 TR C 20kn AAFF 17
 4x4.7-inch (120mm), 1x3-inch AA (76mm), 2xMG, 4x18-inch TT.
 Up to 280 mines.

Otra class minesweeper (2 off completed)

AMS - *Otra* (Sep 1939): 532pts STF 7/4 TR A 15kn AAFF 05
 1x3-inch AA (76mm), 2xMG, 4x18-inch TT.
 Minesweeping gear.
 Other: *Rauma* (Jan 1940).

SUBMARINES

'A' class (3 off) - Coastal Submarines

SM - A.2 (1914): 510pts STF 6/4 TR C 14kn, 9kn (submerged) Test depth 164ft
 Submerged: 3x18-inch TT (1 bow, 2 aft) with 4 TTs. Surface: 1x3-inch Bofors. AAFF 03.
 Radio, hydrophones. Crash dive 30 sec. 1,600nm@9kn surface. 100nm@3kn submerged.
 Others: (1914): A.2 - A.4. Krupp design.

'B' class (6 off) - Coastal Submarines

SM - B.1 (1923): 817pts STF 7/4 TR C 14.5kn, 11kn (submerged) Test depth 164ft
 Submerged: 4x18-inch TT (bow) with 6 TT. Surface: 1x3-inch Bofors. AAFF 03
 Radio, hydrophones. Crash dive 30 sec. 2,900nm@9kn surface. 150nm@3kn submerged.
 Others: B.1 - B.4 (1923). B.5 & B.6. (1929). Holland (US) design.

SOVIET SHIP CHARACTERISTICS

BATTLESHIPS

Poltava class (3 survivors, 1914-15) reconstructed 1928-40) Updated Tsarist Battleships

- BB - *Marat* (1915/31): 33,430pts STF 27/18 TR E 24kn 9/2/8/5/10 AAFF 54
12x12-inch/52, 16x4.7-inch/50, 6x3-inch AA, 36xHMG, 4x18-inch TT (submerged, 16 TT). [ex-Petropavlovsk]
- BB - *Oktyabrskaya Revolyutsiya* (1915/34): 33,892pts STF 27/18 TR E 24kn 9/2/8/5/10 AAFF 54
12x12-inch/52, 16x4.7-inch/50, 6x3-inch AA, 36xHMG, 4x18-inch TT (submerged, 16 TT). [ex-Gangut]
- BB - *Parizhskaya Kommuna* (1914/40): 33,892pts STF 27/18 TR E 24kn 9/2/8/5/10 AAFF 34
12x12-inch/52, 16x4.7-inch/50, 6x3-inch AA, 16xHMG, 4x18-inch TT(submerged, 16 TT).[(1943) Sevastopol]
- Royal Sovereign class (1 off, 1944-45) loaned from RN for Arctic operations.
- BB - *Arkhangelsk* (1916/44): 40,700pts STF 31/20 TR E 22kn 13/4/13/6/11 AAFF 114
8x15-inch/42, 12x6-inch/45, 8x4-inch/45, 24x40mm, 42x20mm AA. Various UK radars. [ex-Royal Sovereign]

HEAVY CRUISERS

Modified Svetiana / Admiral Nakhimov class (1 off, 1935)

- CA - *Krasny Kavkaz* (1935): 14,110pts STF 24/15 TR C 29kn 3/2/1/-/5 AAFF 54
4x7.1-inch/55, 10x3.9-inch/30 AA, 4x45mm/46, 8x37mm. 6x21-inch TT. Up to 100 mines. 2 floatplanes& cat.
Upgrade: (1941) Catapult & floatplanes removed. [1943] ASDIC, 2 DCT, up to 40 DCs. [ex *Admiral Lazarev*].
- Kirov class (6 off, 1938-1944)
- CA - *Kirov* (1938): 15,940pts STF 27/18 TR D 35kn 3/2/4/-/3 AAFF 34
9x7.1-inch/55, 6x3.9-inch/30 AA, 6x45mm/46, 4xHMG. 6x21-inch TT. 2 floatplanes (Be-2/4) & catapult.
Up to 90 mines. ASDIC, 2 DCT, up to 60 DCs. Upgrade: (1941) Catapult & floatplanes removed.
Other: *Voroshilov* (Jun 1940)
- CA - *Maksim Gorky* (Nov 1940): 15,307pts STF 27/18 TR D 35kn 3/2/4/-/3 AAFF 32
9x7.1-inch/55, 6x3.9-inch/30 AA, 10x37mm AA, 4xHMG. 6x21-inch TT. 2 floatplanes (Be-2/4) & catapult.
Up to 100 mines. ASDIC, 2 DCT, up to 90 DCs. Upgrades: (1941) Catapult & floatplanes removed.
(1943) now 13x37mm AA, 6xHMG. AAFF 40. 2 (BMB-1) DC mortars, 6 DCT, up to 90 DCs.
Others: *Molotov* (Jun 1941)
- CA - *Kalinin* (Jun 1943): 15,307pts STF 27/18 TR D 35kn 3/2/4/-/3 AAFF 40
9x7.1-inch/55, 6x3.9-inch/30 AA, 13x37mm AA, 6xHMG. 6x21-inch TT.
Up to 100 mines. ASDIC, 2 (BMB-1) DC mortars, 6 DCT, up to 90 DCs.
Upgrade: (1944) Allied radars fitted - Type 281, Type 282, SC radar & Russian Jupiter-1 GFC.
Other: *Kaganovich* (Jun 1944).
- Petropavlovsk (1 off, 1940) ex-Lützow. Purchased from German Navy. Used as a floating battery.
- CA - *Petropavlovsk* (1940): 23,800pts STF 29/19 TR D Stationary 3/2/4/-/6 AAFF 13
4x8-inch/60, 2x3.7cmAA, 9x2cm Flak. (70% complete by Jun 1941).

LIGHT CRUISERS

Pallada (Admiralty) class (1 survivor, 1903-1935)

- CL - *Avrora* (1903/35): 10,462pts STF 18/12 TR C stationary -/2/3/-/6 AAFF 16
10x5.1-inch/55, 2x3-inch/30 AA, 3x45mm/46, 4xHMG. (1940) training ship in Oranienbaum. [Museum ship]
- Bogadyr class (1 survivor, 1908-1931)
- CL - *Komintern* (1905/31): 11,408pts STF 19/12 TR C 23kn -/2/3/-/5 AAFF 27
10x5.1-inch/55, 3x3-inch/30 AA, 4x75mm/50 AA, 2x37mm AA, 2xHMG. (1931-40) Sevastopol training ship.
Upgrade:(1941) Minelayer up to 160 mines. Add 3x45mm/46. AAFF 33. [ex *Kagul*].
- Svetiana / Admiral Nakhimov class (2 off, 1927-1928)
- CL - *Chervona Ukraina* (1927): 12,754pts STF 23/15 TR C 29kn 3/2/1/-/5 AAFF 30
15x5.1-inch/55, 6x3-inch/30 AA, 12xHMG, 12x21-inch TT. Up to 100 mines. 2 floatplanes & cranes.
Upgrade:(1941) Cranes & floatplanes removed. Add 3x45mm/46. AAFF 36. [ex *Admiral Nakhimov*].
- CL - *Krasny Krym* (1928): 12,444pts STF 23/15 TR C 29kn 3/2/1/-/5 AAFF 26
15x5.1-inch/55, 6x3.9-inch/30 AA, 4x45mm/46, 12x21-inch TT. Up to 100 mines. 2 floatplanes & cranes.
Upgrade: (1941) Cranes & floatplanes removed. [ex *Klara Zetkin, Svetiana & Profintern*].
- Murmansk (1 off, Apr 1944) ex-Milwalkee. Transferred from USN as part of Allied defeat of Italy.
- CL - *Murmansk* (1923): 13,400pts STF 25/16 TR D 34kn 3/2/-/2 AAFF 14
12x6-inch/53, 8x3-inch/50, 8x40mm, 14x20mm, 6x21-inch TT. Up to 224 mines. US radars.

DESTROYERS

Leningrad class (6 off, 1936-1940) Destroyer Leaders

DD - *Leningrad* (1936): 3,585pts STF 18/12 TR C 40kn AAFF 10
5x5.1-inch/55, 2x3-inch AA, 2x45mm, 8x21-inch TT. Up to 115 mines. Hydrophones. Up to 52 DCs.
Others: *Kharkov* (1938), *Moscow* (1938), *Minsk* (1939), *Baku* (1939) & *Tiblisi* (Dec 1940).

Tashkent (1 off, 1939) Destroyer Leader

DD - *Tashkent* (Oct 1939): 4,335pts STF 20/13 TR C 42kn AAFF 18
6x5.1-inch/55, 6x45mm, 6xHMG, 9x21-inch TT. Up to 76 mines. Hydrophones. 1 DCR, 2 DCT, 24 DCs.

Novik class destroyers (17 survivors, 1913-1916, although some Commissionings delayed until late 1920s)

Novik Type I class (1 off, 1913) ex-Novik

DD - *Yakov Sverdlov* (1913): 2,380pts STF 14/9 TR B 30kn AAFF 07
5x4-inch/60, 1x3-inch AA, 1x37mm, 2xHMG, 9x18-inch TT. Up to 60 mines. Hydrophones. Up to 21 DCs.

Novik Type II class (1 off, 1915)

DD - *Frunze* (1915): 1,950pts STF 13/8 TR B 25kn AAFF 07
4x4-inch/60, 1x3-inch AA, 1x37mm, 2xHMG, 9x18-inch TT. Up to 60 mines. Hydrophones. Up to 21 DCs.

Novik Type III class (2 off, 1915-16)

DD - *Kalinin* (1915/27): 2,635pts STF 15/10 TR B 28kn AAFF 07
5x4-inch/60, 1x3-inch AA, 1x37mm, 2xHMG, 6x18-inch TT. Up to 60 mines. Hydrophones. Up to 80 DCs.
Other: *Karl Marx*. Could carry up to 180 troops.

Novik Type IV class (4 off, 1915-16)

DD - *Karl Liebknecht* (1915/28): 2,430pts STF 14/9 TR B 24kn AAFF 14
4x4-inch/60, 1x3-inch AA, 2x45mm, 2x37mm, 3xHMG, 6x18-inch TT. Hydrophones. 2 DCT, 25 DCs.
Up to 60 mines. Others: *Kuibishev*, *Lenin* & *Voikov*. Could carry up to 150 troops.

Novik Type V class (5 off, 1915-16)

DD - *Artem* (1916): 2,700pts STF 14/9 TR B 24kn AAFF 11
4x4-inch/60, 2x45mm, 2x37mm, 3xHMG, 6x18-inch TT. Up to 60 mines. Hydrophones. 2 DCT, 25 DCs.
Others: *Engels*, *Stalin*, *Uritsky* & *Volodarski*.

Novik Type VI class (4 off, 1915-16)

DD - *Dzerzhinski* (1915): 2,550pts STF 14/9 TR B 26kn AAFF 11
4x4-inch/60, 2x45mm, 2x37mm, 3xHMG, 6x18-inch TT. Up to 80 mines. Hydrophones. 2 DCT, 25 DCs.
Others: *Nyezamozhnik*, *Shaumyan* & *Zelezniakov*.

Gnevny class (29 off, 1938-1942)

DD - *Gnevny* (1938): 2,380pts STF 16/10 TR C 38kn AAFF 12
4x5.1-inch/55, 2x3-inch, 2x45mm, 2xHMG, 6x21-inch TT. Up to 95 mines. Hydrophones. 2 DCT, 25 DCs.
Others distributed (Jun 1941) 10 in Baltic, 6 in Black Sea, 5 in Pacific (+8 under construction).

Storozhevoy class (18 off, 1940-1942)

DD - *Storozhevoy* (Oct 1940): 2,550pts STF 16/10 TR C 40kn AAFF 16
4x5.1-inch/55, 2x3-inch, 3x45mm, 4xHMG, 6x21-inch TT. Up to 96 mines. Hydrophones. 2 DCT, 30 DCs.
Others: *Silny*, *Surovy*, *Serdity*, *Stoiky*, *Strashny*, *Slavny*, *Spokoyny*, *Skory*, *Statny*, *Svirepy*, *Strogy*, *Stroiny*, *Smyshleny*, *Soobrazitelny*, *Sposobny*, *Sovershenny* & *Svobodny*.

Ognevoy class (1 completed during WWII, Mar 1945)

DD - *Ognevoy* (Mar 1945): 3,136pts STF 17/11 TR C 36kn Russian radars AAFF 18
4x5.1-inch/55, 2x85mm, 6x37mm, 6x21-inch TT. Up to 60 mines. Tamir-5N sonar. 2 DCT, 22 DCs.

Foreign Destroyers in Soviet Navy service: 9 ex-USN/RN 'Town' class & 4 ex Italian/Romanian DDs.

ESCORTS

Uragan class frigates (18 off, 1931-36)

FF - *Uragan* (1931): 952pts STF 10/6 TR B 25kn AAFF 16
2x3.9-inch/30 AA, 4x45mm, 2xHMG, 3x18-inch TT. Up to 24 mines. Hydrophones. Up to 50 DCs.

Yasteb class frigates (3 completed during WWII, 1945)

FF - *Yasteb* (1945): 1,360pts STF 12/8 TR B 30kn AAFF 25
3x3.9-inch/30 AA, 4x37mm, 8xHMG. Up to 20 mines. Hydrophones. 2 DCT, 50 DCs.

Albatros class frigates (2 completed during WWII, 1944)

FF - *Albatros* (1944): 1,380pts STF 12/8 TR B 25kn AAFF 29
3x3.9-inch/30 AA, 6x37mm, 8xHMG, 3x21-inch TT. Up to 20 mines. Hydrophones. 2 DCT, 50 DCs.

GUNBOATS

Old gunboat / Depot ship (1 off, 1895)

Krasnoye Znamya (1895): 4,800pts STF 11/7 TR A 13kn 5/1/-/-1 AAFF 08
5x5.1-inch/55, 2x3-inch AA, 1x45mm. Up to 50 mines.
Upgrade: (1944) 5x5.1-inch/55, 3x3-inch AA, 4x45mm. AAFF 30.

Moskva class gunboat (12 off, 1939/1941) Converted from dredgers.

Moskva (1941): 1,420pts STF 10/6 TR A 8kn AAFF 12
2x5.1-inch/50, 2x3-inch AA, 2x45mm, 2xHMG.

Elpidiofor class gunboat (4 survivors, 1920-24) Originally landing ships for WWI.

Krasnaya Abkhaziya (1920): 1,650pts STF 13/8 TR A 8kn AAFF 19
3x5.1-inch/55, 2x3-inch AA, 2x45mm, 2x37mm, 5xHMG. Up to 380 mines.

MINELAYERS

Converted minelayers (16 off, 1936-42) various types

Marti (1896/1936): 5,664pts STF 22/14 TR A 18kn AAFF 30
4x5.1-inch/50, 7x3-inch/55 AA, 3x45mm, 3xHMG. Up to 580 mines. [converted Imperial Yacht]

MINESWEEPERS

Tral class (48 off, 1937-41, and two in 1944-45)

T.1 Strela (1938): 714pts STF 9/6 TR B 18kn AAFF 05

1x3.9-inch/30 AA, 1x45mm. M/S gear. Up to 31 mines. Hydrophones. Up to 40 DCs.

Polukhin class (6 off, 1942-45)

T.250 Polukhin (1942): 1050pts STF 11/7 TR B 24kn AAFF 05

2x3.9-inch/30 AA, 3x37mm, 2x20mm AA. M/S gear. Up to 15 mines. Hydrophones. 2 DCT, 40 DCs.

ex-Admirable class (30 off, 1942/1943) ex-Admirable class USN, 10 in 1943 & 20 in 1945

T.111 (1942/43): 937pts STF 8/5 TR A 15kn AAFF 17

1x3-inch/50 DP, 4x40mm, 6x20mm AA. Minesweeping gear.

'TAM' class (7 off, 1928-31) ex-RN auxiliary minesweeping trawlers, transferred to USSR 1942.

T.101 (1931/42): 375pts STF 6/4 TR A 10kn AAFF 06

1x3-inch/50, 3xMG. Minesweeping gear (acoustic & magnetic).

T.301 & T.371 class (145 off, 1943-45) Coastal Minesweepers

T.371 (1944): 190pts STF 5/3 TR A 18kn AAFF 08

2x45mm, 4xHMG. Minesweeping gear. Up to 18 mines. Hydrophones. Up to 40 DCs.

ICEBREAKERS

Leader class icebreakers (4 off)

I. Stalin (1938): 4,866pts (grt) STF 19/12 TR A 15kn AAFF 16
2x5.1-inch, 4x3-inch/55 AA, 2xHMG. 3 floatplanes (small)

Others: *V. Molotov* (1941/46), *A. Mikovan* (1941) & *I. Kaganovich* (1939).

SUBCHASERS

MO.2, 4 & BMO classes (90 off, 1937-45) Subchasers

MO.2 (1937): 84pts STF 3/2 TR A 24kn AAFF 04 1x45mm, 2xHMG. Up to 32 DCs.

MO.4 (1938): 84pts STF 3/2 TR A 25kn AAFF 06 2x45mm, 2xHMG. Up to 32 DCs.

BMO.201 (1941): 92pts STF 3/2 TR A 23kn AAFF 04 1x37mm, 2xHMG. Up to 32 DCs.

BO.2, Artillerist class (17 off, 1941-44) Large Subchaser

BO.101 Artillerist (1941): 360pts STF 7/4 TR B 18kn AAFF 10

1x3-inch/55 AA, 2x37mm, 3xHMG. Hydrophones. Up to 32 DCs.

MOTOR TORPEDO BOATS & MOTOR GUN BOATS

G.5 class (292 off, 1934-37) MTBs

G.5 (1934): 24pts STF 2/1 TR A 45kn 2xHMG. 2x21-inch TT, or 24 DCs, or 4 mines.

D.3 class (130 off, 1939-45) MTBs

D.3 (1939): 48pts STF 3/2 TR A 32kn 4xHMG. 2x21-inch TT & 24 DCs, or 120 DCs.

BKA.1124 class (>100 off, 1935-45) MGBs

BKA.1124 (1935): 63pts STF 3/2 TR A 28kn 2x3-inch AA, 6xHMG.

BKA.1125 class (270 off, 1935-45) MGBs

BKA.1125 (1935): 44pts STF 3/2 TR A 20kn 1x3-inch AA, 1xHMG, 2xMG.

SUBMARINES

A class (5 off, 1921-28) - Coastal Submarines (Training Boats)

SM - *A.1* (1921): 680pts STF 6/4 TR B 12kn, 8kn (submerged) Test depth 160ft

Submerged: 4x18-inch TT (bow) with 8 TTs. Surface: 1x45mm, 1xHMG. AAFF 03.

Radio, hydrophones. Crash dive 30 sec. 1.500nm@7kn surface, 80nm@3kn submerged. Others: *A.1* to *A.5*.

M (Malyutka) Series I & II class (52 off, 1933-37) - Coastal Submarines
 SM - *M.1* (1933): 303pts STF 5/3 TR B 13kn, 7kn (submerged) Test depth 200ft
 Submerged: 2x21-inch TT (bow) with 2 TTs. Surface: 1x45mm. AAFF 02.
 Radio, hydrophones, sonar. Crash dive 30 sec. 1,600nm@8kn surface, 55nm@2kn submerged.
 Others: *M.1* to *M.80*, not continuous.

M (Malyutka) Series III & IV class (45 off, 1938-43) - Coastal Submarines
 SM - *M.31* (1938): 387pts STF 6/4 TR B 14kn, 8kn (submerged) Test depth 200ft
 Submerged: 2x21-inch TT (bow) with 2 TTs. Surface: 1x45mm. AAFF 02.
 Radio, hydrophones, sonar. Crash dive 30 sec. 3,440nm@9kn surface, 107nm@3kn submerged.
 Others: *M.31* to *M.176*, not continuous.

M (Malyutka) Series V class (3 completed during WWII, 1943-45) - Coastal Submarines
 SM - *M.200* (1943): 630pts STF 7/5 TR B 15kn, 10kn (submerged) Test depth 246ft
 Submerged: 4x21-inch TT (2 bow, 2 aft) with 4 TTs. Surface: 1x45mm. AAFF 02.
 Radio, hydrophones, sonar. Crash dive 30 sec. 4,000nm@8kn surface, 55nm@2kn submerged.
 Others: *M.200*, *M.201* & *M.204*.

Shch (Shchuka) class (90 off, 1933-42) - Coastal Submarines - Series I to IV. *Shch.101* to *Shch.408*, not continuous.
 Naming convention: first number for fleet. 1 - Far East, 2 - Black Sea, 3 - Baltic, 4 - Arctic.

SM - *Shch.301* (1933): 1056pts STF 8/5 TR C 11kn, 8kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 10 TTs. Surface: 1x45mm. AAFF 02. Series III - 4 boats.
 Radio, hydrophones, sonar. Crash dive 35 sec. 3,250nm@8kn surface, 110nm@2kn submerged.

SM - *Shch.101* (1935): 1053pts STF 8/5 TR C 13kn, 7kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 10 TTs. Surface: 2x45mm. AAFF 04. Series V - 39 boats.
 Radio, hydrophones, sonar. Crash dive 35 sec. 6,700nm@8kn surface, 100nm@2kn submerged.

SM - *Shch.126* (1936): 1058pts STF 8/5 TR C 13kn, 8kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 10 TTs. Surface: 2x45mm. AAFF 04. Series X - 47 boats.
 Radio, hydrophones, sonar. Crash dive 35 sec. 6,140nm@7kn surface, 122nm@2kn submerged.

D (Dekabrist) class (6 off, 1931-32) - Medium Submarines
 SM - *D.1* (1931): 1977pts STF 12/8 TR B 15kn, 8kn (submerged) Test depth 246ft
 Submerged: 8x21-inch TT (6 bow & 2 aft) with 10 TTs. Surface: 1x4-inch/45, 2x45mm. AAFF 07.
 8 mines (2 tubes). Crash dive 40 sec. 7,000nm@9kn surface, 105nm@4kn submerged.
 Radio, hydrophones, sonar. Others: *D.1* to *D.6*.

L (Leninets) class (24 off, 1933-42) - Medium Submarines
 SM - *L.1* (1933): 2325pts STF 11/7 TR C 14kn, 9kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow & 2 aft) with 12 TTs. Surface: 1x4-inch/60, 1x45mm. AAFF 05.
 14 mines (2 tubes). Crash dive 40 sec. 7,400nm@8kn surface, 154nm@3kn submerged.
 Radio, hydrophones, sonar. Others: *L.1* to *L.24*.

S (Stalinets) class (33 completed during WWII, 1936-45) - Medium Submarines. Ten more completed after WWII.
 SM - *S.1* (1936): 1605pts STF 11/7 TR C 19kn, 9kn (submerged) Test depth 328ft
 Submerged: 6x21-inch TT (4 bow & 2 aft) with 12 TTs. Surface: 1x4-inch/60, 1x45mm. AAFF 05.
 14 mines (2 tubes). Crash dive 30 sec. 9,800nm@10kn surface, 148nm@3kn submerged.
 Radio, hydrophones, sonar. Others: *S.1* to *S.16*, *S.19*, *S.31* to *S.38*, *S.51* to *S.58*, *S.101* to *S.104*.

P (Pravda) class (3 off, 1936-37) - Ocean Submarines
 SM - *P.1* (1936): 2505pts STF 13/8 TR B 18kn, 7kn (submerged) Test depth 246ft
 Submerged: 6x21-inch TT (4 bow & 2 aft) with 10 TTs. Surface: 2x4-inch/60, 1x45mm. AAFF 08.
 Radio, hydrophones, sonar. Crash dive 50 sec. 5,700nm@10kn surface, 105nm@4kn submerged.
 Others: *P.1* to *P.3*.

K (Katyusha) class (13 off, 1940-42) - Ocean Submarines
 SM - *K.1* (1940): 3142pts STF 13/9 TR C 22kn, 10kn (submerged) Test depth 224ft
 Submerged: 8x21-inch TT (4 bow & 4 aft) with 22 TTs. Surface: 2x4-inch/60, 2x45mm. AAFF 10.
 20 mines (2 tubes). Crash dive 40 sec. 15,000nm@9kn surface, 160nm@3kn submerged.
 Radio, hydrophones, sonar. Others: *K.1* to *K.3*, *K.21* to *K.24*, *K.51* to *K.56*.

UNITED STATES SHIP CHARACTERISTICS

BATTLESHIPS

Arkansas class (1 off, 1912)

BB-33 *Arkansas* (1912): 36,080pts STF 25/16 TR E 20kn 11/6/12/11/12 AAFF 24
12x12-inch/50 Mk 7, 16x5-inch/51 BL, 8x3-inch/50 AA. 3 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Jul 1942) GFC & SC radars. 12x12-inch, 6x5-inch, 10x3-inch, 36x40mm, 26x20mm AA. AAFF 128.

New York class (2 off, 1914)

BB-34 *New York* (1914): 37,870pts STF 25/16 TR E 21kn 12/6/14/12/12 AAFF 24
10x14-inch/45, 16x5-inch/51 BL, 8x3-inch/50 AA. XAF radar (1941). 3 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Aug 1942) GFC & SC radars. 10x14-inch, 6x5-inch, 10x3-inch, 24x40mm, 42x20mm. AAFF 138.

BB-35 *Texas* (1914): 37,870pts STF 25/16 TR E 21kn 12/6/14/12/12 AAFF 32
10x14-inch/45, 16x5-inch/51 BL, 8x3-inch/50 AA, 8x28mm. XAF radar (1941). 3 floatplanes, 2 catapults.
Upgrades: (1942) GFC & SC radars. 2 floatplanes, 1 cat. now 16x28mm. AAFF 40. (1943) 10x14-inch, 6x5-inch, 10x3-inch, 40x40mm, 24x20mm. AAFF 134. (1944) 44x20mm AA. AAFF 154.

Nevada class (2 off, 1916)

BB-36 *Nevada* (1916): 43,340pts STF 26/17 TR E 20kn 14/6/18/13/16 AAFF 32
10x14-inch/45, 12x5-inch/51 BL, 8x5-inch/25 DP, 8xHMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Oct 1942) GFC & SC radars. 10x14-inch, 16x5-inch/38 DP, 32x40mm, 40x20mm. AAFF 152.
2 floatplanes (Kingfisher). 2 catapults.
Other: BB-37 *Oklahoma* (1916). [sunk Pearl Harbor. Salvaged but decommissioned beyond repair 1944]

Pennsylvania class (2 off, 1916)

BB-38 *Pennsylvania* (1916): 47,610pts STF 27/17 TR E 20kn 14/6/18/13/16 AAFF 32
12x14-inch/45, 12x5-inch/51 BL, 8x5-inch/25 DP, 8xHMG. 2 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Apr 1942) GFC & SC radars. 12x14-inch, 16x5-inch/38 DP, 40x40mm, 51x20mm. AAFF 179.
Other: BB-39 *Arizona* (1916). [sunk Pearl Harbor. Now memorial]

New Mexico class (3 off, 1917-19)

BB-40 *New Mexico* (1918): 46,730pts STF 27/18 TR E 22kn 14/6/18/14/16 AAFF 32
12x14-inch/50 Mk 4, 12x5-inch/51 BL, 8x5-inch/25 DP, 8xHMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrades: (Aug 1942) 12x14-inch, 8x5-inch/51, 8x5-inch/25, 8x40mm, 8x28mm, 6x20mm. AAFF 54.
GFC & SC radars. (1943) remove 28mm, 40x40mm, 14x20mm. AAFF 118.

BB-41 *Mississippi* (1917): 46,730pts STF 27/18 TR E 22kn 14/6/18/14/16 AAFF 32
12x14-inch/50 Mk 4, 12x5-inch/51 BL, 8x5-inch/25 DP, 8xHMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrades: (Aug 1942) 12x14-inch, 8x5-inch/51, 8x5-inch/25, 8x40mm, 8x28mm, 6x20mm. AAFF 54.
GFC & SC radars. (1943) remove 28mm, 40x40mm, 14x20mm. AAFF 118.
(1945) Radar upgrade. 12x14-inch, 16x5-inch/38 DP, 52x40mm, 40x20mm. AAFF 192.

BB-42 *Idaho* (1919): 46,730pts STF 27/18 TR E 22kn 14/6/18/14/16 AAFF 32
12x14-inch/50 Mk 4, 12x5-inch/51 BL, 8x5-inch/25 DP, 8xHMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrades: (Dec 1942) GFC & SC radars. 8x5-inch/51, 8x5-inch/25, 40x40mm, 43x20mm. AAFF 147.
(Jan 1945) Radar upgrade. 12x14-inch, 10x5-inch/38 DP, 40x40mm, 43x20mm. AAFF 153.

Tennessee class (2 off, 1920-21)

BB-43 *Tennessee* (1920): 45,388pts STF 27/18 TR E 20kn 14/4/18/14/16 AAFF 38
12x14-inch/50 Mk 4, 12x5-inch/51 BL, 8x5-inch/25 DP, 2x3-inch/50 AA, 8xHMG. 3 floatplanes. 2 catapults.
Upgrades: (Feb 1942) 12x14-inch, 16x5-inch/51, 8x5-inch/25, 2x3-inch, 16x28mm, 14x20mm AA. AAFF 60.
GFC & SC radars. 2 floatplanes (Kingfisher). 1 catapult.
(May 1943) Armour 14/7/18/14/5. 12x14-inch Mk 11, 16x5-inch/38 DP, 40x40mm, 43x20mm. AAFF 171.

BB-44 *California* (1921): 45,388pts STF 27/18 TR E 20kn 14/4/18/14/16 AAFF 38
12x14-inch/50 Mk 4, 12x5-inch/51 BL, 8x5-inch/25 DP, 2x3-inch/50 AA, 8xHMG. 3 floatplanes. 2 catapults.
Upgrade: (Feb 1944) Upgraded radars. 2 floatplanes (Kingfisher). 1 catapult. Armour 14/7/18/14/5.
12x14-inch/50 Mk 11, 16x5-inch/38 DP twins, 40x40mm, 43x20mm. AAFF 171. [Rebuilt after Pearl Harbor]

Colorado class (3 off, 1921-23)

BB-45 *Colorado* (1923): 46,270pts STF 27/18 TR E 21kn 16/4/18/13/12 AAFF 32
8x16-inch/45 Mk 1, 12x5-inch/51 BL, 8x5-inch/25 DP, 8x28mm AA. 2 floatplanes (Kingfisher). 1 catapult.
Upgrades: (Apr 1942) GFC & SC radar. 8x16-inch, 8x5-inch/51, 8x5-inch/25, 16x28mm, 18x20mm. AAFF 54.
(1944) 8x16-inch, 6x5-inch/51, 8x5-inch/25, 42x40mm, 36x20mm. AAFF 144.

BB-46 *Maryland* (1921): 46,270pts STF 27/18 TR E 21kn 16/4/18/13/12 AAFF 32
8x16-inch/45 Mk 1, 12x5-inch/51 BL, 8x5-inch/25 DP, 8x28mm AA. 2 floatplanes (Kingfisher). 1 catapult.
Upgrades: (Apr 1942) GFC & SC radar. 8x16-inch, 8x5-inch/51, 8x5-inch/25, 16x28mm, 32x20mm. AAFF 72.
(1944) 8x16-inch, 16x5-inch/38 DP twins, 42x40mm, 64x20mm. AAFF 172.

BB-48 *West Virginia* (1923): 46,270pts STF 27/18 TR E 21kn 16/4/18/13/12 AAFF 32
8x16-inch/45 Mk 1, 12x5-inch/51 BL, 8x5-inch/25 DP, 8x28mm AA. 2 floatplanes (Kingfisher). 1 catapult.
Upgrade: (Sep 1944) Upgraded radars. 2 floatplanes (Kingfisher). 1 catapult. Armour 16/7/18/13/5.
8x16-inch/50 Mk 11, 16x5-inch/38 DP twins, 40x40mm, 43x20mm. AAFF 171. [Rebuilt after Pearl Harbor]

North Carolina (2 off, 1941)

BB-55 *North Carolina* (Apr 1941): 51,040pts STF 32/21 TR G 28kn 16/6/16/2/15 AAFF 96
9x16-inch/45 Mk 6, 20x5-inch/38 DP, 24x28mm AA, 12xMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrades: (Feb 1942) GFC & SC radars. add 20x20mm AA. AAFF 116. (1943) remove 28mm, 40x40mm,
40x20mm AA. AAFF 192. (1944) New radars. 9x16-inch, 20x5-inch, 60x40mm, 64x20mm. AAFF 244.

BB-56 *Washington* (May 1941): 51,040pts STF 32/21 TR G 28kn 16/6/16/2/15 AAFF 96
9x16-inch/45 Mk 6, 20x5-inch/38 DP, 24x28mm AA, 12xMG. 3 floatplanes (Kingfisher). 2 catapults.
Upgrades: (Feb 1942) GFC & SC radars. add 20x20mm AA. AAFF 116. (1943) remove 28mm, 40x40mm,
40x20mm AA. AAFF 192. (1944) New radars. 9x16-inch, 20x5-inch, 60x40mm, 64x20mm. AAFF 244.

South Dakota class (4 off, 1942)

BB-57 *South Dakota* (Mar 1942): 50,020pts STF 30/20 TR G 27kn 16/6/18/2/16 AAFF 174
9x16-inch/45 Mk 6, 16x5-inch/38 DP, 28x40mm, 28x28mm AA, 34x20mm AA, 8xMG.
Radars: GFC & SC radars. 3 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Feb 1943) New radars. 9x16-inch, 16x5-inch, 88x40mm, 80x20mm AA. AAFF 304.

BB-58 *Indiana* (Apr 1942): 52,620pts STF 30/20 TR G 27kn 16/6/18/2/16 AAFF 151
9x16-inch/45 Mk 6, 20x5-inch/38 DP, 28x40mm, 35x20mm AA.
Radars: GFC & SC radars. 3 floatplanes (Kingfisher). 2 catapults.
Upgrade: (Jan 1943) New radars. 9x16-inch, 16x5-inch, 48x40mm, 53x20mm AA. AAFF 209.
Others: *Massachusetts* (May 1942) & *Alabama* (Aug 1942), similar to *Indiana*.

Iowa class (4 off, 1943-44)

BB-61 *Iowa* (Feb 1943): 65,750pts STF 39/26 TR H 33kn 16/6/20/2/17 AAFF 264
9x16-inch/50 Mk 7, 20x5-inch/38 DP, 76x40mm, 52x20mm AA.
Radars: GFC MK 8 & Mk 12/22. SK, SG & SR radars. 3 floatplanes (Kingfisher & Seahawk). 2 catapults.

BB-62 *New Jersey* (May 1943): 67,324pts STF 39/26 TR H 33kn 16/6/20/2/17 AAFF 269
9x16-inch/50 Mk 7, 20x5-inch/38 DP, 80x40mm, 49x20mm AA.
Radars: GFC MK 8 & Mk 12/22. SK, SG & SR radars. 3 floatplanes (Kingfisher & Seahawk). 2 catapults.

BB-63 *Missouri* (Jun 1944): 67,324pts STF 39/26 TR H 33kn 16/6/20/2/17 AAFF 189
9x16-inch/50 Mk 7, 20x5-inch/38 DP, 40x40mm, 49x20mm AA.
Radars: GFC MK 8 & Mk 12/22. SK, SG & SR radars. 3 floatplanes (Kingfisher & Seahawk). 2 catapults.

BB-64 *Wisconsin* (Apr 1944): 67,324pts STF 39/26 TR H 33kn 16/6/20/2/17 AAFF 189
9x16-inch/50 Mk 7, 20x5-inch/38 DP, 40x40mm, 49x20mm AA.
Radars: GFC MK 8 & Mk 12/22. SK, SG & SR radars. 3 floatplanes (Kingfisher & Seahawk). 2 catapults.

BATTLECRUISERS

Alaska class (2 off, 1944)

CB-1 *Alaska* (Jun 1944): 41,910pts STF 36/23 TR H 33kn 16/6/20/2/17 AAFF 182
9x12-inch/50 Mk 8, 12x5-inch/38 DP, 56x40mm, 34x20mm AA.
Radars: GFC, SK, SG & SR radars. 4 floatplanes (Kingfisher & Seahawk). hangar, 2 catapults.
Other: CB-2 *Guam* (Sep 1944).

FLEET AIRCRAFT CARRIERS

Early Fleet Aircraft Carriers [ship damage-gunnery/AAF/hex move FT max. a/c launch(norm/basic) ready a/c type]

CV-1 *Langley* (1913/1920): 12,850pts STF 30/20 TR D 15kn No Armour AAFF 16
4x5-inch/51 BL, 4x3-inch AA, 4xHMG. 1 hangar deck, 1 lift, 1 catapult. 36 a/c max.
AA Upgrade: (1940) 12xHMG, AAFF 32, (1942) 13x20mm AA, (remove HMG) AAFF 33
In 1937 redesignated as Aviation Tender AV-3, 1941-42 transport 32xArmy P-40 a/c. [sunk 27 Feb 1942]
Air Ops 15 9/3 6 CV (1933 - 15xBoeing F4B biplanes, 15xSU floatplanes). [4-1/1/1 Flat Top 11 2/4 4 CV]

CV-2 *Lexington* (1927): 31,336pts STF 49/32 TR E 33kn 7/0-2/-2/2 AAFF 87
8x8-inch/55, 12x5-inch/25 DP, 5x3-inch AA, 36xHMG. 1 hangar deck, 2 lifts, 1 catapult. 90 a/c max.
Upgrades: (1941) CXAM-1 radar. (Mar 1942) 12x5-inch/25, 48x28mm, 22x20mm, 24xHMG. AAFF 130.
Air Ops 90 36/9 24 CV [sunk May 1942] [6-1/4/2 Flat Top 30 12/3 8 CV]

CV-3 *Saratoga* (1927): 31,336pts STF 49/32 TR E 33kn 7/0-2/-2/2 AAFF 87
8x8-inch/55, 12x5-inch/25 DP, 5x3-inch AA, 36xHMG. 1 hangar deck, 2 lifts, 1 catapult. 78 a/c, (96 max.)
Upgrades: (1941) CXAM-1 radar. (Feb 1942) 16x5-inch/38 DP, 36x28mm, 32x20mm. AAFF 116.
(Aug 1942) 16x5-inch, 36x40mm, 52x20mm. AAFF 172. (1944) 16x5-inch, 96x40mm, 16x20mm. AAFF 256.
Air Ops 96 36/9 24 CV [8-1/5/2 Flat Top 32 12/3 8 CV]

CV-4	<i>Ranger</i> (1934):	15,596pts	STF 42/28	TR D	30kn	2/0-1/-/-	AAFF 64
	8x5-inch/25 DP, 40xHMG.					1 hangar deck, 3 lifts, 3 catapults.	76 a/c, (86 max.)
	Upgrades: (1941) CXAM-1 radar. (Mar 1942) 8x5-inch/25 DP, 24x28mm, 40x20mm.						AAFF 88.
	(Dec 1942) 8x5-inch, 24x40mm, 46x20mm.						AAFF 118.
	Air Ops 86 27/9 21 CV					[4-1/3/2 Flat Top 28 9/3 7 CV]	
CV-5	<i>Yorktown</i> (1936):	19,424pts	STF 45/30	TR D	32kn	4/0-1/-/-4	AAFF 64
	8x5-inch/38 DP, 16x28mm, 24xHMG.					1 hangar deck, 3 lifts, 3 catapults.	90 a/c max.
	Upgrades: (1940) CXAM-1 radar. (Feb 1942) SC radar. 8x5-inch, 16x28mm, 24x20mm, 24xHMG.						AAFF 88.
	Air Ops 90 33/9 27 CV		[sunk Midway 7 Jun 1942]			[5-1/4/2 Flat Top 30 11/3 9 CV]	
CV-6	<i>Enterprise</i> (1938):	19,330pts	STF 45/30	TR D	32kn	4/0-1/-/2/4	AAFF 64
	8x5-inch/38 DP, 16x28mm, 24xHMG.					1 hangar deck, 3 lifts, 3 catapults.	96 a/c max.
	Upgrades: (1941) CXAM-1 radar. (Apr 1942) 8x5-inch, 16x28mm, 30x20mm.						AAFF 70.
	(Jul 1942) 8x5-inch, 20x28mm, 32x20mm.						AAFF 76. (Sep 1942) SC radar. 16x40mm, 44x20mm.
	(Oct 1943) 8x5-inch, 54x40mm, 32x20mm.						AAFF 106.
	Air Ops 96 33/9 27 CV					[7-1/7/2 Flat Top 33 11/3 9 CV]	
CV-7	<i>Wasp</i> (1940):	15,576pts	STF 41/27	TR D	30kn	4/0-1/-/2/2	AAFF 64
	8x5-inch/38 DP, 16x28mm, 24xHMG.					1 hangar deck, 3 lifts, 4 catapults.	70 a/c, (84 a/c max.)
	Upgrade: (1941) CXAM-1 radar. 1 catapult removed. No AA upgrade due to European service.						
	Air Ops 84 30/9 21 CV		[sunk Guadalcanal Sep 1942]			[6-1/5/2 Flat Top 28 10/3 7 CV]	
CV-8	<i>Hornet</i> (1941):	19,358pts	STF 45/30	TR D	32kn	4/0-1/-/2/4	AAFF 64
	8x5-inch/38 DP, 16x28mm, 24xHMG.					1 hangar deck, 3 lifts, 3 catapults.	72 a/c, (90 a/c max.)
	Upgrades: (1941) CXAM-1 radar. (Feb 1942) 8x5-inch, 20x28mm, 32x20mm.						AAFF 76.
	Air Ops 90 33/9 27 CV		[sunk Solomons Oct 1942]			[7-1/5/2 Flat Top 33 11/3 9 CV]	
Essex class (10 off, 1942-44) 'Short Hull' version							
CV-9	<i>Essex</i> (Dec 1942):	25,000pts	STF 48/32	TR D	33kn	4/1½-3/1½/-/-	AAFF 237
	12x5-inch/38 DP, 68x40mm, 65x20mm AA. Radars SK, SC & SG. 3 lifts, 3 catapults.						Up to 100 a/c max.
	Upgrade: (1943) New radar. 12x5-inch/38, 100x40mm, 86x20mm.						AAFF 322. 3 lifts, 4 catapults.
	Others: CV-9 to CV-13, CV-16 to CV-18, CV-20 & CV-31.						
	Air Ops 100 36/9 27 CV					[8-1/6/2 Flat Top 34 12/3 9 CV]	
Essex class (7 off, 1944-45) 'Long Hull' version							
CV-14	<i>Ticonderoga</i> (May 1944):	25,100pts	STF 49/32	TR D	33kn	4/1½-3/1½/-/-	AAFF 322
	12x5-inch/38 DP, 100x40mm, 86x20mm AA. Radars SK, SC & SG. 3 lifts, 4 catapults.						Up to 100 a/c max.
	Others: CV-14, CV-15, CV-19, CV-21, CV-36, CV-38 & CV-39.						
	Air Ops 100 36/9 27 CV					[8-1/6/2 Flat Top 34 12/3 9 CV]	

LIGHT AIRCRAFT CARRIERS

Independence class (9 off, 1943)

CVL-22	<i>Independence</i> (Jan 1943):	12,150pts	STF 34/22	TR D	31kn	-/0-3/-/-/-	AAFF 52
	26x40mm. Radar SC.					2 lifts, 1 catapult.	36 a/c normal, (45 a/c max.)
	Air Ops 45 21/9 21 CV. (1944): 24xF6F Hellcat, 9xTBM Avenger, 1xJ2F Duck.					[4-1/5/2 F/Top 12 7/3 7 CV]	
CVL-23	<i>Princeton</i> (Feb 1943):	same as <i>Independence</i> except:					22x40mm, 16x20mm. AAFF 60.
CVL-24	<i>Belleau Wood</i> (Mar 1943):	12,316pts	STF 34/22	TR D	31kn	5/0-3/-/-/-	AAFF 70
	24x40mm, 22x20mm AA. Radar SC.					2 lifts, 1 catapult.	36 a/c normal, (45 a/c max.)
CVL-25	<i>Cowpens</i> (May 1943):	same as <i>Belleau Wood</i> except:					26x40mm. AAFF 52.
CVL-26	<i>Monterey</i> (Jun 1943):	same as <i>Belleau Wood</i> except:					26x40mm, 20x20mm. AAFF 72.
CVL-27	<i>Langley</i> (Aug 1943):	same as <i>Belleau Wood</i> except:					26x40mm. AAFF 52.
CVL-28	<i>Cabot</i> (Jul 1943):	same as <i>Belleau Wood</i> except:					26x40mm. AAFF 52.
CVL-29	<i>Bataan</i> (Nov 1943):	same as <i>Belleau Wood</i> except:					26x40mm, 18x20mm. AAFF 70.
CVL-30	<i>San Jacinto</i> (Dec 1943):	same as <i>Belleau Wood</i> except:					28x40mm, 40x20mm. AAFF 96.

ESCORT CARRIERS

Long Island (1 off, 1941)

CVE-1	<i>Long Island</i> (Jun 1941):	9,380pts	STF 27/18	TR A	16kn	Radar SC	AAFF 09
	1x5-inch/38 DP, 2x3-inch/50. Converted merchantman.					1 lift, 1 catapult.	21 a/c normal, (30 a/c max.)
	Air Ops 30 12/6 12 CV.						[3-0/3/1 Flat Top 10 4/2 4 CV]
Bogue class (11 off, 1942-44)							
CVE-9	<i>Bogue</i> (Sep 1942):	9,468pts	STF 27/18	TR B	17kn	Radar SC	AAFF 16
	2x5-inch/38 DP, 10x20mm AA.					2 lifts, 1 catapult.	24 a/c normal, (28 a/c max.)
	Upgrade: (1944) 2x5-inch/38, 16x40mm, 20x20mm.						AAFF 58. [+11 trans. to RN, 15 similar RN <i>Ruler</i> class].
	Air Ops 28 12/6 12 CV.						[3-0/3/1 Flat Top 9 4/2 4 CV]

Sangamon class (4 off, 1942)

CVE-26 *Sangamon* (Aug 1942): 12,058pts STF 30/20 TR B 18kn Radar SC AAFF 34
 2x5-inch/38 DP, 8x40mm, 12x20mm AA. 2 lifts, 1 catapult. 25 a/c normal, (32 a/c max.)
 Upgrade: (1944) 2x5-inch/38, 16x40mm, 20x20mm. AAFF 58. Others: CVE-26 to CVE-29.
 Air Ops 32 12/6 12 CV. [3-0/3/1 Flat Top 10 4/2 4 CV]

Charger (1 off, 1942)

CVE-30 *Charger* (Mar 1942): 9,575pts STF 27/18 TR A 17kn AAFF 19
 1x5-inch/38 DP, 2x3-inch/50, 10x20mm. Converted merchant, 1 lift, 1 catapult. 21 a/c normal, (30 a/c max.)
 Air Ops 30 12/6 12 CV. [3-0/3/1 Flat Top 10 4/2 4 CV]

Casablanca class (50 off, 1943-44)

CVE-55 *Casablanca* (Jul 1943): 9,240pts STF 28/18 TR B 19kn Radar SC AAFF 31
 1x5-inch/38 DP, 8x40mm, 12x20mm AA. 2 lifts, 1 catapult. 25 a/c normal, (28 a/c max.)
 Upgrade: (1944) 1x5-inch/38, 16x40mm, 30x20mm. AAFF 65. Others: CVE-55 to CVE-104.
 Air Ops 28 12/6 12 CV. [3-0/3/1 Flat Top 9 4/2 4 CV]

Commencement Bay class (10 off completed, 1944-45)

CVE-105 *Commencement Bay* (Nov 1944): 11,700pts STF 30/20 TR B 19kn Radar SC AAFF 98
 2x5-inch/38 DP, 36x40mm, 20x20mm AA. 2 lifts, 1 catapult. 28 a/c normal, (34 a/c max.)
 Others: CVE-105 to CVE-113 & CVE-115. Air Ops 28 12/6 12 CV. [3-0/3/1 Flat Top 9 4/2 4 CV]

HEAVY CRUISERS

Pensacola class (2 off, 1929-30) - Nicknamed 'Tin-clads'.

CA-24 *Pensacola* (1930): 15,920pts STF 26/17 TR D 32kn 3/2/3/-/2 AAFF 40
 10x8-inch/55 Mk 14, 8x5-inch/25 DP, 8x28mm (1.1-inch), 8xHMG. 4 floatplanes. 2 catapults.
 Upgrades: (Jul 1942) AA & GFC radars. 10x8-inch/55, 8x5-inch/25 DP, 8x40mm, 8x20mm AA. AAFF 48.
 Sonar QC. 2 DCR, up to 14 DCs. (1943) 24x40mm, 19x20mm AA. AAFF 91.
 (late 1944) New radars. 10x8-inch/55, 8x5-inch/25 DP, 28x40mm, 18x20mm AA. AAFF 98.
 Others: CA-25 *Louisville* (1929) same as *Pensacola*. [unusually 8-inch, twins below triple turrets].

Northampton class (6 off, 1930-31)

CA-26 *Northampton* (1930): 16,080pts STF 26/17 TR D 32kn 3/2/3/-/2 AAFF 44
 9x8-inch/55, 8x5-inch/25 DP, 4x3-inch/50, 8xHMG. 4 floatplanes. 2 catapults.
 Upgrades: (Jul 1942) AA & GFC radars. 9x8-inch/55, 8x5-inch/25 DP, 8x40mm, 8x20mm AA. AAFF 48.
 Sonar QC. 2 DCR, up to 14 DCs. (1943) 16x40mm, 20x20mm AA. AAFF 76.
 (late 1944) New radars. 9x8-inch/55, 8x5-inch/25 DP, 24x40mm, 28x20mm AA. AAFF 100.
 Others: CA-28 *Louisville* (1931) & CA-29 *Chicago* (1931) same as *Northampton*.

CA-27 *Chester* (1930): same as *Northampton* (1939-41).

Upgrades: (Aug 1942) AA & GFC radars. 9x8-inch, 8x5-inch, 8x28mm, 13x20mm AA. AAFF 45.
 CA-30 *Houston* (1930): 16,080pts STF 26/17 TR D 32kn 3/2/3/-/2 AAFF 44
 9x8-inch/55, 8x5-inch/25 DP, 4x3-inch/50, 8xHMG. 4 floatplanes. 2 catapults.
 Upgrades: (Jul 1942) AA & GFC radars. 9x8-inch/55, 8x5-inch/25 DP, 8x40mm, 8x20mm AA. AAFF 48.
 Sonar QC. 2 DCR, up to 14 DCs. (1943) 16x40mm, 20x20mm AA. AAFF 76.
 (late 1944) New radars. 9x8-inch/55, 8x5-inch/25 DP, 24x40mm, 28x20mm AA. AAFF 100.

CA-31 *Augusta* (1931): same as *Northampton* (1939-42).

Upgrade: (late 1943) AA & GFC radars. 9x8-inch, 8x5-inch, 24x40mm, 20x20mm AA. AAFF 92.

Portland class (2 off, 1932-33)

CA-33 *Portland* (1933): 16,990pts STF 27/17 TR D 33kn 5/3/3/-/2 AAFF 32
 9x8-inch/55, 8x5-inch/25 DP, 8xHMG. Sonar QC. 2 DCR, up to 14 DCs. 4 floatplanes. 2 catapults.
 Upgrades: (1942) AA & GFC radars. 9x8-inch/55, 8x5-inch/25 DP, 24x28mm, 8x20mm AA. AAFF 56.
 (1944) New radars. 9x8-inch/55, 8x5-inch/25 DP, 36x40mm, 19x20mm AA. AAFF 115.

CA-35 *Indianapolis* (1932): 17,100pts STF 27/17 TR D 33kn 5/3/3/-/2 AAFF 32
 9x8-inch/55, 8x5-inch/25 DP, 8xHMG. Sonar QC. 2 DCR, up to 14 DCs. 4 floatplanes. 2 catapults.
 Upgrades: (1942) AA & GFC radars. 9x8-inch/55, 8x5-inch/25 DP, 24x28mm, 8x20mm AA. AAFF 56.
 (1944) New radars. 9x8-inch/55, 8x5-inch/25 DP, 36x40mm, 19x20mm. AAFF 115. (1945) 3 FP, 1 catapult.

New Orleans class (7 off, 1934-37)

CA-32 *New Orleans* (1934): 17,580pts STF 26/17 TR D 33kn 5/3/8/2/5 AAFF 32
 9x8-inch/55, 8x5-inch/25 DP, 8xHMG. 3 floatplanes. 2 catapults.
 Upgrades: (1942) AA & GFC radars. 9x8-inch/55, 8x5-inch/25 DP, 24x28mm, 8x20mm AA. AAFF 56.
 (1944) New radars. 9x8-inch/55, 8x5-inch/25 DP, 24x40mm, 20x20mm AA. AAFF 92

CA-34 *Astoria* (1934): same as *New Orleans* (1939-41). [sunk Savo 9 Aug 1942]

Upgrades: (1942) AA & GFC radars. 9x8-inch, 8x5-inch, 16x28mm, 12x20mm AA. AAFF 52.

CA-36 *Minneapolis* (1934): same as *New Orleans* (1939-43).

Upgrades: (1944) New radars. 9x8-inch, 8x5-inch, 28x40mm, 18x20mm AA. AAFF 98.

CA-37 *Tuscaloosa* (1934): same as *New Orleans* (1939-43).
 Upgrades: (1944) New radars. 9x8-inch, 8x5-inch, 24x40mm, 28x20mm AA. AAFF 100.

CA-38 *San Francisco* (1934): same as *New Orleans* (1939-43).
 Upgrades: (1944) New radars. 9x8-inch, 8x5-inch, 24x40mm, 26x20mm AA. AAFF 98.

CA-39 *Quincy* (1936): same as *New Orleans* (1939-41). [sunk Savo 9 Aug 1942]
 Upgrades: (1942) AA & GFC radars. 9x8-inch, 8x5-inch, 16x28mm, 12x20mm AA. AAFF 52.

CA-44 *Vincennes* (1937): same as *New Orleans* (1939-41). [sunk Savo 9 Aug 1942]
 Upgrades: (1942) AA & GFC radars. 9x8-inch, 8x5-inch, 16x28mm, 12x20mm AA. AAFF 52.

Wichita (1 off, 1939)

CA-45 *Wichita* (1939): 18,770pts STF 27/17 TR D 33kn 7/3/8/2/6 AAFF 40
 9x8-inch/55, 8x5-inch/38, 8x28mm, 8xHMG.
 4 floatplanes. 2 catapults.
 Upgrades: (1942) AA & GFC radars. 9x8-inch, 8x5-inch/38, 16x28mm, 20x20mm AA. AAFF 60
 (1944) New radars. 9x8-inch, 8x5-inch/38, 24x40mm, 18x20mm AA. AAFF 90. 2 floatplanes. 1 catapult.

Baltimore class (12 off, 1943-45)

CA-63 *Baltimore* (Apr 1943): 17,400pts STF 27/17 TR D 32kn 5/2/7/-/5 AAFF 156
 9x8-inch/55, 12x5-inch/38 twin, 48x40mm, 24x20mm AA. AA & GFC radars. 4 floatplanes. 2 catapults.
 Others: CA-64 to CA-74, CL-130 to CL-132, CA-135 & CA-136.

LIGHT CRUISERS

Omaha class (10 off, 1923-25)

CL-4 *Omaha* (1923): 13,400pts STF 25/16 TR D 34kn 3/2/-/-/2 AAFF 14
 12x6-inch/53, 2x3-inch/50, 8xHMG, 6x21-inch TT. Up to 224 mines. 2 floatplanes. 2 catapults.
 Upgrades: (1942) 10x6-inch, 8x3-inch, 12x28mm, 8x20mm, 6x21-inch TT. AAFF 44.
 (1944) AA & GFC radars. 10x6-inch, 8x3-inch, 6x40mm, 14x20mm, 6x21-inch TT. AAFF 50.
 Others: CL-5 *Milwaukee*, CL-6 *Cincinnati*, CL-7 *Raleigh*, CL-8 *Detroit*, CL-9 *Richmond*, CL-10 *Concord*,
 CL-11 *Trenton*, CL-12 *Marblehead* & CL-13 *Memphis*.

Brooklyn class (7 off, 1937-38)

CL-40 *Brooklyn* (1937): 17,400pts STF 27/17 TR D 32kn 5/2/7/-/5 AAFF 32
 15x6-inch/47, 8x5-inch/25, 8xHMG.
 2 floatplanes. 2 catapults.
 Upgrades: (1942) remove HMGs. 8x20mm. AAFF 32.
 (1944) AA & GFC radars. 15x6-inch, 8x5-inch, 28x40mm, 20x20mm. AAFF 100.
 Others: CL-41 to CL-43, CL-46 to CL-48. *Philadelphia*, *Savannah*, *Nashville*, *Phoenix*, *Boise* & *Honolulu*.

St Louis class (2 off, 1939)

CL-49 *St Louis* (1939): 17,700pts STF 27/17 TR D 32kn 5/2/7/1/5 AAFF 32
 15x6-inch/47, 8x5-inch/38 twin, 8xHMG.
 2 floatplanes. 2 catapults.
 Upgrades: (1942) remove HMGs. 16x40mm, 12x20mm. AAFF 68.
 (1944) AA & GFC radars. 15x6-inch, 8x5-inch/38, 28x40mm, 18x20mm. AAFF 98.
 Other: CL-50 *Helena*. [sunk 6 Jul 1943]

Atlanta class (8 off, 1941-45)

CL-51 *Atlanta* (Dec 1941): 13,000pts STF 24/15 TR D 32kn 4/2/2/-/3 AAFF 72
 16x5-inch/38 twin, 16x28mm, 8x20mm AA, 8x21-inch TT. Sonar QC. 2 DCR, 6 DCT, up to 56 DCs.
 Upgrade: (1943) GFC radars. 16x5-inch/38, 16x40mm, 16x20mm AA, 8x21-inch TT. AAFF 96.
 Others: CL-52 *Juneau* (Feb 42), CL-53 *San Diego* (Jan 42) & CL-54 *San Juan* (Feb 42).

CL-95 *Oakland* (Jul 1943): 13,000pts STF 24/15 TR D 32kn 4/2/2/-/3 AAFF 84
 12x5-inch/38 twin, 16x40mm, 16x20mm AA, 8x21-inch TT. GFC radars. 2 DCR, 6 DCT, up to 56 DCs.
 Upgrade: (1944) 12x5-inch/38, 24x40mm, 16x20mm AA. AAFF 100.
 Others: CL-96 *Reno* (Dec 43), CL-97 *Flint* (Aug 44) & CL-98 *Tucson* (Feb 45).

Cleveland class (25 off, 1942-45)

CL-55 *Cleveland* (Jun 1942): 13,980pts STF 27/17 TR D 32kn 5/2/7/2/5 AAFF 80
 12x6-inch/47, 12x5-inch/38 DP twin, 12x40mm, 20x20mm AA.
 Radars: GFC, SK, SG & SR radars. 2 floatplanes (Kingfisher & Seahawk). hangar, 2 stern catapults.
 Upgrades: (1944) 12x6-inch, 12x5-inch, 28x40mm, 10x20mm. AAFF 102.
 Others: CL-55 to CL-67, CL-76 to CL-94, CL-99 to CL-105.

DESTROYERS

Allen (1 off, 1917)

DD-66 *Allen* (1917): 1400pts STF 14/9 TR B 30kn AAFF 09
 4x4-inch/50, 1x3-inch/23 AA, 6x20mm AA, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC.

Flush Deck Destroyers - Caldwell, Wickes & Clemson classes

Caldwell class (1 survivor, 1918) - 3 others transferred to RN as 'Town' class.

DD-70 *Conway* (1918): 1530pts STF 14/9 TR B 30kn AAFF 09
4x4-inch/50, 1x3-inch/23 AA, 6x20mm AA, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC.

Wickes class (77 survivors, 1918-20)

DD-75 *Wickes* (1918): 1530pts STF 14/9 TR B 30kn AAFF 03
4x4-inch/50, 1x3-inch/23 AA, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC.

Conversions: 16 to High Speed Transport APD, 8 to Destroyer Minesweeper DMS, 9 to Auxiliaries Misc. AG, 13 to Destroyer Minelayer DM, & 23 others transferred to RN as 'Town' class.

DD-79 *Little* (1918/1940): 1785pts STF 14/9 TR B 25kn AAFF 06
3x4-inch/50, 2x3-inch/23 AA, 6x21-inch TT. APD-4 High Speed Transport (Total 36 APDs converted FDs)
Others: *APD-1 Manley*, *APD-2 Colhoun*, *APD-3 Gregory*, *APD-5 McKean*, etc.

Clemson class (76 survivors, 1919-22) - 23 others transferred to RN as 'Town' class.

DD-186 *Clemson* (1918): 1785pts STF 14/9 TR B 28kn AAFF 03
4x4-inch/50, 1x3-inch/23 AA, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC. (1942) SC radar
Conversions: 13 to High Speed Transport APD, 9 to Destroyer Minesweeper DMS, 12 to Auxiliaries Misc. AG, 7 to Aviation Tender AVD, & 24 others transferred to RN as 'Town' class.

DD-208 *Hovey* (1918): 1635pts STF 14/9 TR B 28kn AAFF 03
8x4-inch/50, 1x3-inch/23 AA, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC. (1942) SC radar
Other: DD-209 *Long*. Upgunned version.

DD-231 *Hatfield* (1920): 1785pts STF 14/9 TR B 28kn AAFF 17
4x5-inch/38 DP, 1x3-inch/23 AA, 2xHMG, 6x21-inch TT. Hydrophones. 2 DCR, up to 10 DC.
Upgrades: (1942) SC radar. (1943-44) *Brooks*, *Gilmer* & *Kane* converted to APDs.
Others: DD-232 *Brooks*, DD-233 *Gilmer*, DD-234 *Fox* & DD-235 *Kane*. (Total 5 off)

1930s Rearmament Programmes

Farragut class (8 off, 1934-35)

DD-348 *Farragut* (1934): 2050pts STF 15/10 TR C 37kn AAFF 19
5x5-inch/38 DP, 4xHMG, 8x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 5x20mm, 8x21-inch TT. AAFF 25.
Others: DD-348 to DD-355. (1943) 2 DCR, 4 DCT, up to 30 DC.

Porter class (8 off, 1936-37) Destroyer Leaders

DD-356 *Porter* (1936): 2775pts STF 17/11 TR C 36kn AAFF 32
8x5-inch/38 DP twins, 8x28mm, 8x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrades: (1942): Radars SC & GFC, 8x5-inch, 2x40mm, 6x20mm, 8x21-inch TT. AAFF 34.
(1943) 2 DCR, 4 DCT, up to 30 DC. (1944) 16x40mm, 4x20mm AA. AAFF 60.
Others: DD-356 to DD-363.

Mahan class (16 off, 1936)

DD-364 *Mahan* (1936): 2286pts STF 15/10 TR C 37kn AAFF 19
5x5-inch/38 DP, 4xHMG, 12x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 5x20mm, 8x21-inch TT. AAFF 25.
Others: DD-364 to DD-379. (1943) 2 DCR, 4 DCT, up to 30 DC.

Gridley class (4 off, 1937-38)

DD-380 *Gridley* (1937): 2420pts STF 15/10 TR C 36kn AAFF 16
4x5-inch/38 DP, 4xHMG, 16x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 7x20mm, 8x21-inch TT. AAFF 20.
Others: DD-380, DD-382, DD-400 & DD-401. (1943) 2 DCR, 4 DCT, up to 30 DC.

Bagley class (8 off, 1937)

DD-386 *Bagley* (1937): 2385pts STF 15/10 TR C 36kn AAFF 16
4x5-inch/38 DP, 4xHMG, 16x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 7x20mm, 8x21-inch TT. AAFF 19.
Others: DD-387 to DD-393. (1943) 2 DCR, 4 DCT, up to 30 DC.

Somers class (5 off, 1937) Destroyer Leaders

DD-381 *Somers* (1937): 2775pts STF 17/11 TR C 37kn AAFF 34
8x5-inch/38 DP twins, 8x28mm, 2xHMG, 12x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrades: (1942): Radars SC & GFC, 6x5-inch, 2x40mm, 8x28mm, 2x20mm, 12x21-inch TT. AAFF 32.
(1944) 6x5-inch/38, 14x40mm, 4x20mm, 8x21-inch TT. AAFF 50. 2 DCR, 4 DCT, up to 30 DC.
Others: DD-383, DD-394, DD-395 & DD-396..

Fanning class (2 off, 1937) Modified Mahan class destroyers
DD-385 *Fanning* (1937): 2286pts STF 15/10 TR C 36kn AAFF 19
5x5-inch/38 DP (fwd enclosed), 4xHMG, 12x21-inch TT. Sonar QC. 2 DCR, up to 14 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 6x20mm, 12x21-inch TT. AAFF 26.
Other: *DD-384 Dunlap*. (1943) 2 DCR, 4 DCT, up to 30 DC.

Benham class (10 off, 1939)
DD-397 *Benham* (1939): 2385pts STF 15/10 TR C 37kn AAFF 20
4x5-inch/38 DP, 4x28mm, 4xHMG, 16x21-inch TT. Sonar QC. 2 DCR, up to 10 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 2x40mm, 4x20mm, 8x21-inch TT. AAFF 20.
Others: *DD-398, DD-399, DD-402 to DD-408*. (1943) 2 DCR, 4 DCT, up to 30 DC.

Sims class (12 off, 1939-40)
DD-409 *Sims* (1939): 2400pts STF 15/10 TR C 35kn AAFF 19
5x5-inch/38 DP, 4xHMG, 8x21-inch TT. Sonar QC. 2 DCR, up to 10 DC.
Upgrade: (1943): Radars SC & GFC, 4 or 5x5-inch, 4x40mm, 4x20mm, 8x21-inch TT. AAFF 27.
Others: *DD-422, DD-410 to DD-420*. (1943) 2 DCR, 4 DCT, up to 30 DC.

Benson class (30 off, 1940-43)
DD-421 *Benson* (Jun 1940): 2430pts STF 15/10 TR C 37kn AAFF 19
5x5-inch/38 DP, 4xHMG, 10x21-inch TT. (2x5 tube launchers). Sonar QC. 2 DCR, 1 DCT, up to 22 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 4x20mm, 5x21-inch TT. AAFF 24
Others: *DD-422, DD-425 to DD-428*. (Total 6 off).

DD-459 *Laffey* (Mar 1942): 2430pts STF 15/10 TR C 37kn AAFF 27
4x5-inch/38 DP, 4x40mm, 7x20mm, 5x21-inch TT. Sonar QC. 2 DCR, 4 DCT, up to 30 DC.
Upgrade: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 4x20mm, 5x21-inch TT. AAFF 24
Others: *DD-460* and various batches up to *DD-617*. (Total 24 off).

DD-600 *Boyle* (Aug 1942): 2430pts STF 15/10 TR C 37kn AAFF 27
4x5-inch/38 DP, 4x40mm, 7x20mm, 5x21-inch TT. Sonar QC. 2 DCR, 4 DCT, up to 30 DC.
Upgrades: (1943): Radars SC & GFC, 4x5-inch, 4x40mm, 4x20mm, 5x21-inch TT. AAFF 24.
Converted to AA Destroyers (1944-45) 4x5-inch/38, 12x40mm, 4x20mm. AAFF 40.
Others: *DD-600, DD-603, DD-604, DD-608, DD-610, DD-612 to DD-617*. (Total 12 off).

Gleaves class (66 off, 1940-43)
DD-423 *Gleaves* (Jun 1940): 2445pts STF 15/10 TR C 37kn AAFF 21
5x5-inch/38 DP, 2x40mm, 6xHMG, 10x21-inch TT. (2x5 tube launchers).
Radars (Surface Search, Air Search & Gunnery), Sonar QCJ. 2 DCR, up to 10 DC.
Upgrade: (1943): 4x5-inch, 4x40mm, 6x20mm, 5x21-inch TT. AAFF 26
Others: *DD-424, DD-429 to DD-444*. (Total 18 off).

DD-453 *Bristol* (Oct 1941): 2445pts STF 15/10 TR C 37kn AAFF 27
4x5-inch/38 DP, 4x40mm, 7x20mm AA, 5x21-inch TT.
Radars (Surface Search, Air Search & Gunnery), Sonar QCJ. 2 DCR, 4 DCT, up to 30 DC.
Others: *DD-454* and various batches up to *DD-648*. (Total 48 off).

DD-489 *Mervine* (Jun 1942): 2445pts STF 15/10 TR C 37kn AAFF 31
Upgrade: (1945) DMS-31 Minesweeper Conversion. 3x5-inch/38 DP, 8x40mm, 6x20mm AA.
Radars (Surface Search, Air Search & Gunnery), Sonar QCJ. 2 DCR, 6 DCT, up to 42 DC.

Fletcher class (175 off, 1942-44)
DD-445 *Fletcher* (Jun 1942): 3075pts STF 16/11 TR C 35kn AAFF 25
5x5-inch/38 DP, 2x40mm, 6x20mm AA, 10x21-inch TT. (2x5 tube launchers).
Radars (Surface Search, Air Search & Gunnery), Sonar QC. 2 DCR, 6 DCT. Up to 56 DC.
Upgrade: (1944): 5x5-inch, 4x40mm, 10x20mm, 10x21-inch TT. AAFF 33.

Allen M. Sumner class (58 off, 1943-45)
DD-692 *Allen M. Sumner* (Jan 1944): 3637pts STF 16/11 TR C 34kn AAFF 53
6x5-inch/38 twin, 12x40mm, 11x20mm AA, 10x21-inch TT. (2x5 tube launchers).
Radars (Surface Search, Air Search & Gunnery), Sonar QGA. 2 DCR, 6 DCT. Up to 56 DC.

Gearing class (98 off, 1945)
DD-710 *Gearing* (May 1945): 3637pts STF 17/11 TR C 35kn AAFF 53
6x5-inch/38 twin, 12x40mm, 11x20mm AA, 10x21-inch TT. (2x5 tube launchers).
Radars (Surface Search, Air Search & Gunnery), Sonar QGA. 2 DCR, 6 DCT. Up to 56 DC.

DESTROYER ESCORTS

Evarts class (65 off, Jan 1943 - Apr 1944)

DE-5 *Evarts* (Apr 1943): 1740pts STF 12/8 TR B 21kn AAFF 25
 3x3-inch/50 DP, 4x28mm (1.1-inch), 9x20mm AA, 3x21-inch TT.
 Radar SL & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 160 DC.
 Also an additional 32 delivered to the RN as 'Captain' class.

Buckley class (102 off, Apr 1943 - Jul 1944)

DE-51 *Buckley* (Apr 1943): 2100pts STF 13/9 TR B 23kn AAFF 21
 3x3-inch/50 DP, 4x28mm/2x40mm, 8x20mm AA, 3x21-inch TT.
 Radar SL, SC & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 200 DC.

Cannon class (66 off, Sep 1943 - Dec 1944)

DE-99 *Cannon* (Sep 1943): 1860pts STF 13/9 TR B 21kn AAFF 21

3x3-inch/50 DP, 2x40mm, 8x20mm AA, 3x21-inch TT.
 Radar SL, SC & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 200 DC.

Also during WWII 6 Buckley class DEs were delivered to the Free French Navy, and 8 to the Brazilian Navy..

Edsall class (85 off, Apr 1943 - Feb 1944)

DE-129 *Edsall* (Apr 1943): 1880pts STF 13/9 TR B 21kn AAFF 21

3x3-inch/50 DP, 2x40mm, 8x20mm AA, 3x21-inch TT.
 Radar SL, SC & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 200 DC.

Rudderow class (22 off, Dec 1943 - Sep 1944)

DE-224 *Rudderow* (May 1944): 2175pts STF 13/9 TR B 24kn AAFF 24

2x5-inch/38 DP, 4x40mm, 10x20mm AA, 3x21-inch TT.
 Radar SL, SC & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 200 DC.

John C. Butler class (80 off, Mar 1944 - Aug 1945)

DE-339 *John C. Butler* (Mar 1944): 2058pts STF 13/9 TR B 24kn AAFF 24

2x5-inch/38 DP, 4x40mm, 10x20mm AA, 3x21-inch TT. Upgrade: (1945) 10x40mm, AAFF 36.
 Radar SL, SC & SA, ASDIC 128/144, HF/DF. 1 Hedgehog, 2 DCR, 8 DCT. Up to 200 DC.

MINELAYERS

Converted Flush-Decker Destroyers (8 off, 1930, 31 & 37) DM Light Minelayers

DM-17 *Montgomery* (1918/1931): 1530pts STF 14/9 TR B 25kn AAFF 06
 3x4-inch/50, 2x3-inch/23 AA. [was DD-121 Destroyer] Hydrophones. 2 DCR, up to 10 DC.
 Others: DM-15 to DM-22.

Robert H. Smith class (12 off, 1944) DM Light Minelayers

DM-23 *Robert H. Smith* (Aug 1944): 3300pts STF 16/11 TR C 34kn AAFF 53
 6x5-inch/38 twin, 12x40mm, 11x20mm AA. Minesweeping gear. Up to 80 mines.
 Radars (Surface Search, Air Search & Gunnery), Sonar QGA. 2 DCR, 4 DCT. Up to 30 DC.
 Others: DM-23 to DM-34. [based upon *Allen M. Sumner* destroyers]

Chimo class (9 off, 1944-45) Auxiliary Minelayers

ACM-1 *Chimo* (Apr 1944): 1341pts STF 8/5 TR A 14kn AAFF 03
 1x3-inch/50 or 1x40mm.

MINESWEEPERS

Converted Flush-Decker Destroyers (18 off, 1940 & 42) DMS Fast Minesweepers

DMS-1 *Dorsey* (1918/1940): 1530pts STF 14/9 TR B 30kn AAFF 06
 3x4-inch/50, 2x3-inch/23 AA. Minesweeping gear. [was DD-117] Hydrophones. 2 DCR, up to 10 DC.
 Others: DMS-1 to DMS-18.

Ellyson class (24 off, converted 1944-45) DMS Fast Minesweepers

DMS-19 *Ellyson* (Nov 1941/Nov 1944): 2445pts STF 15/10 TR C 37kn AAFF 31
 3x5-inch/38 twin, 8x40mm, 6x20mm AA. Minesweeping gear.
 Radars (Surface Search, Air Search & Gunnery), Sonar QCJ. 2 DCR, up to 10 DC.
 Others: DM-23 to DM-34. [converted *Gleaves* class destroyers]

Bird class (33 survivors, 1918-19)

AM-2 *Owl* (1918): 1447pts STF 8/5 TR B 14kn AAFF 07
 2x3-inch/50 DP, 2xMG. Minesweeping gear.

Raven class (2 70 off, 1940-45)

AM-55 *Raven* (1940): 1215pts STF 10/6 TR B 18kn AAFF 07
 1x3-inch/50 DP, 2x40mm. Minesweeping gear. Sonar QC. 2 DCR, 5 DCT, up to 40 DC.
 Other: AM-56 *Osprey*.

Auk class (68 off, 1942-45)
 AM-57 *Auk* (1942): 1350pts STF 10/6 TR B 18kn AAFF 18
 2x3-inch/50 DP, 2x40mm, 8x20mm. Minesweeping gear. Sonar QC. 2 DCR, 5 DCT, up to 40 DC.
 Others: AM-57 to AM-341, with numerous gaps.
 AM-371 *Minivet* (1945): 1350pts STF 10/6 TR B 18kn AAFF 18
 2x3-inch/50 DP, 2x40mm, 8x20mm. M/S gear. Sonar QC. 1 Hedgehog, 2 DCR, 4 DCT, up to 40 DC.
 Others: AM-371 to AM-389, with gaps.
 Converted Fishing Vessels (19 off, converted 1940-42)
 AM-66 *Bullfinch* (1937/1940): 648pts STF 7/4 TR A 10kn AAFF 05
 1x3-inch/23, 2xHMG. Minesweeping gear.
 AM-133 *Hawk* (1937/1941): 810pts STF 8/5 TR A 11kn AAFF 03
 1x3-inch/50, 2x57mm (6pdr). Minesweeping gear.
 Adroit class (18 off, 1942-43)
 AM-82 *Adroit* (1942): 442pts STF 7/5 TR A 16kn AAFF 05
 1x3-inch/50 DP, 1x40mm. Minesweeping gear.
 Admirable class (123 off, 1942-45)
 AM-136 *Admirable* (1942): 937pts STF 8/5 TR A 15kn AAFF 17
 1x3-inch/50 DP, 4x40mm, 6x20mm AA. Minesweeping gear.

ESCORTS & PATROL CRAFT

Erie class Gunboats (7 survivors, 1936)
 PG-50 *Erie* (1936): 3048pts STF 14/9 TR C 20kn 4/1/1/-/4 AAFF 08
 4x6-inch/47 Mk17, 4x28mm, 4x20mm. Radar: GFC (Mk 3). Sonar ASDIC. 2 DCR, 30 DC.
 2 Seaplanes (Seagull/Kingfisher). Derrick & boom. Other: PG-51 *Charleston*.
 Tempress class (18 off, 1942-43) USN version of RN *Flower* class corvette.
 PG-61 *Tempress* (1942): 1387pts STF 9/6 TR A 16kn AAFF 06
 1x4-inch/50 DP, 1x3-inch/50. Minesweeping gear. Sonar ASDIC. 2 DCR, 2 DCT, 40 DC.
 Upgrade: (1943) 1x4-inch, 1x3-inch, 1x40mm, 2x20mm AA. AAFF 10.
 M/S gear removed. Updated sonar, Hedgehog fitted (1943/44), 2 DCR, 1 DCT, 70 DCs.
 Asheville class (18 off, 1942-45) Patrol Frigates. USN version of RN *River* class frigate.
 PF-1 *Asheville* (Dec 1942): 2145pts STF 13/9 TR B 20kn AAFF 26
 3x3-inch/50, 4x40mm, 9x20mm AA. Sonar ASDIC. 1 Hedgehog, 2 DCR, 8 DCT, 70 DC.
 Patrol Craft, Escorts 842 class (68 off, 1943-45)
 PCE-842 (1943): 1290pts STF 10/6 TR A 15kn AAFF 19
 1x3-inch/50, 6x40mm, 4x20mm AA. Sonar. SC 1 Hedgehog, 2 DCR, 1 DCT, 70 DCs.
 Submarine Chaser 461 class (343 off, 1942-44) 46 transferred to Allies under Lend-Lease.
 PC-461 (1942): 420pts STF 9/6 TR A 18kn AAFF 10
 1x3-inch/50, 1x40mm, 5x20mm AA. Sonar SC. 2 DCR, 4 DCT, 56 DCs.

MOTOR TORPEDO BOATS (PT)

PT-20 class boats (38 off, 1941-42) 77ft
PT-20 (1941): 52pts STF 3/2 TR A 40kn 4xHMG, 2x21-inch TT (4 TT). AAFF 04.
 PT-71 class boats (199 off, 1942-45) 78ft Higgins
PT-71 (1942): 52pts STF 3/2 TR A 40kn 4xHMG, 4x21-inch TT (4 TT). AAFF 04.
 PT-95 class boats (18 off, 1942-43) 78ft Huckins
PT-95 (1942): 51pts STF 3/2 TR A 41kn 4xHMG, 4x21-inch TT (4 TT). AAFF 04.
 PT-103 class boats (326 off, 1942-45) 80ft Elco
PT-103 (1942): 57pts STF 3/2 TR A 41kn 4xHMG, 4x21-inch TT (4 TT). AAFF 04.

SUBMARINES

'O' class (8 off) - Coastal Submarines (Training Boats)
 SM - O.2 (1918): 944pts STF 7/5 TR B 14kn, 10.5kn (submerged) Test depth 200ft
 Submerged: 4x18-inch TT (bow) with 8 TTs. Surface: 1xHMG. AAFF 01.
 Radio, hydrophones, sonar. Crash dive 30 sec. 5,000nm@11kn surface.
 Others: (1918): O.2, O.3, O.4, O.6, O.7, O.8, O.9 & O.10.
 'R' class (19 off) - Coastal Submarines (later Training Boats)
 SM - R.1 (1918): 1020pts STF 8/5 TR B 13.5kn, 10.5kn (submerged) Test depth 200ft
 Submerged: 4x21-inch TT (bow) with 8 TTs. Surface: 1x3-inch/50, 1xHMG. AAFF 04.
 Radio, hydrophones, sonar. Crash dive 30 sec. 3,700nm@10kn surface. From late 1942 training boats.
 Others: (1918-19): R.1 - R.7, R.9 - R.20. [R.3, R.17 & R.19 loaned to RN in 1941].

'S' class Group 1 (24 off) - Coastal Submarines - [Total 'S' class used in WWII - 37 boats].
 SM - *S.1* (1920): 1593pts STF 9/6 TR C 14.5kn, 11kn (submerged) Test depth 200ft
 Submerged: 4x21-inch TT (bow) with 12 TTs. Surface: 1x4-inch/50, 1xHMG. AAFF 04.
 Radio, hydrophones, sonar. Crash dive 30 sec. 5,000nm@10kn surface.
 Others: (1920-24): *S.1, S.18, S.20 - S.29, S.30 - S.41*.
[S.1, R.21, S.22, S.24, S.25 & S.29 loaned to RN in 1941].

'S' class Group 2 (7 off) - Coastal Submarines
 SM - *S.11* (1921): 1638pts STF 10/6 TR C 15kn, 11kn (submerged) Test depth 200ft
 Submerged: 4x21-inch TT (bow) with 12 TTs. Surface: 1x4-inch/50, 1xHMG. AAFF 04.
[S.11, S.12 & S.13 had 5x21-inch TT (4 bow, 1 aft) with 14 TT].
 Radio, hydrophones, sonar. Crash dive 30 sec. 5,000nm@10kn surface.
 Others: (1921): *S.11 - S.17*.

'S' class Group 3 (6 off) - Coastal Submarines
 SM - *S.42* (1923): 1689pts STF 10/6 TR C 14.5kn, 11kn (submerged) Test depth 200ft
 Submerged: 4x21-inch TT (bow) with 12 TTs. Surface: 1x4-inch/50, 1xHMG. AAFF 04.
 Radio, hydrophones, sonar. Crash dive 30 sec. 5,000nm@10kn surface.
 Others: (1923-24): *S.42 - S.47*.

'S' class Group 4 (1 off) - Coastal Submarine
 SM - *S.48* (1923): 1845pts STF 11/7 TR C 14.5kn, 11kn (submerged) Test depth 200ft
 Submerged: 5x21-inch TT (bow) with 14 TTs. Surface: 1x4-inch/50, 1xHMG. AAFF 04.
 Radio, hydrophones, sonar. Crash dive 30 sec. 8,000nm@10kn surface.

Barracuda class (3 off) - Fleet Submarines
 SM - *Barracuda* (1924): 3930pts STF 15/10 TR C 18kn, 8kn (submerged) Test depth 200ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 12 TTs. Surface: 1x5-inch/50. AAFF 03.
Bass fitted with 1x3-inch/50 instead of 5-inch. AA upgrade (1943) main guns replaced by 2x20mm AA.
 Radio, hydrophones, sonar. Crash dive 45 sec. 12,000nm@11kn surface. 10nm@8kn submerged.
 Others: (1924-26): *Bass & Bonita*.

Argonaut class (1 off) - Fleet Submarine
 SM - *Argonaut* (1928): 8304pts STF 16/11 TR C 15kn, 8kn (submerged) Test depth 300ft
 Submerged: 4x21-inch TT (4 bow) with 16 TTs. Surface: 2x6-inch/53, 2xMG. AAFF 01. Up to 60 mines.
 Radio, hydrophones, sonar. Crash dive 45 sec. 18,000nm@8kn surface. 10nm@8kn submerged.
 Built as minelayer but early 1942 used as transport submarine.

Nautilus class (2 off) - Fleet Submarines
 SM - *Nautilus* (1930): 8090pts STF 16/10 TR C 17kn, 8kn (submerged) Test depth 300ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 20 TTs. Surface: 2x6-inch/53, 2xMG. AAFF 01.
 Upgrade (1942) additional 4x21-inch TT (external 2 bow, 2 aft).
 Radio, hydrophones, sonar. Crash dive 45 sec. 18,000nm@8kn surface. 10nm@8kn submerged.
 Others: (1930): *Narwhal*.

Dolphin class (1 off) - Fleet Submarine
 SM - *Dolphin* (1932): 3360pts STF 14/9 TR C 17kn, 8kn (submerged) Test depth 250ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 18 TTs. Surface: 1x4-inch/50, 4xMG. AAFF 05.
 Radio, hydrophones, sonar. Crash dive 40 sec. 9,000nm@10kn surface. 10nm@8kn submerged.

Catchalot class (2 off) - Fleet Submarines
 SM - *Catchalot* (1933): 2475pts STF 12/8 TR C 17kn, 8kn (submerged) Test depth 250ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 16 TTs. Surface: 1x3-inch/40, 4xMG. AAFF 05.
 Radio, hydrophones, sonar. Crash dive 40 sec. 9,000nm@12kn surface. 10nm@8kn submerged.
 Others: (1934): *Cuttlefish*.

Porpoise class, Group 1 (2 off) - Fleet Submarines
 SM - *Porpoise* (1935): 2940pts STF 13/8 TR C 19kn, 8kn (submerged) Test depth 250ft
 Submerged: 8x21-inch TT (4 bow, 2 aft & 2 external) with 16 TTs. 1x3-inch/40, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 42nm@5kn submerged.
 Others: (1935): *Pike*.

Porpoise class, Group 2 (2 off) - Fleet Submarines
 SM - *Shark* (1936): 2952pts STF 13/8 TR C 19kn, 8kn (submerged) Test depth 250ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 16 TTs. 1x3-inch/40, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 42nm@5kn submerged.
 Others: (1936): *Tarpon*. [*Tarpon* also fitted with 2 external TT as *Porpoise*].

Porpoise class, Group 3 (6 off) - Fleet Submarines

SM - *Perch* (1936): 3007pts STF 13/8 TR C 19kn, 8kn (submerged) Test depth 250ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 16 TTs. 1x3-inch/40, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 42nm@5kn submerged.
 Others: (1936-37): *Pickrel, Permit, Plunger, Pollack & Pompano*. [*Perch & Permit* with 2 external TT].

Salmon class, Group 1 (6 off) - Fleet Submarines

SM - *Salmon* (1938): 3297pts STF 13/9 TR C 20kn, 9kn (submerged) Test depth 256ft
 Submerged: 8x21-inch TT (4 bow, 4 aft) with 24 TTs. 1x3-inch/40, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 85nm@5kn submerged.
 Others: (1937-38): *Seal, Skipjack, Snapper, Stingray & Sturgeon*.

Salmon class, Group 2 (10 off) - Fleet Submarines

SM - *Sargo* (1939): 3525pts STF 13/9 TR C 20kn, 9kn (submerged) Test depth 256ft
 Submerged: 8x21-inch TT (4 bow, 4 aft) with 24 TTs. 1x3-inch/40, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 85nm@5kn submerged.
 Others: (1939): *Saury, Spearfish, Seadragon, Sealion, Sculpin, Sailfish, Searaven, Seawolf & Swordfish*.

Tambor class (12 off) - Fleet Submarines

SM - *Tambor* (1940): 3555pts STF 13/9 TR C 20kn, 8.5kn (submerged) Test depth 288ft
 Submerged: 10x21-inch TT (6 bow, 4 aft) with 24 TTs. 1x3-inch/50, 2xHMG, 2xMG. AAFF 06.
 Radio, hydrophones, sonar. Crash dive 40 sec. 10,000nm@10kn surface. 60nm@5kn submerged.
 Upgrade: (1942) Radar installed, now 1x5-inch/50, 2x20mm AA. AAFF 05.
 Others: (1940-41): *Taotog, Thresher, Gar, Grampus, Greyback, Triton, Trout, Greyling, Grenadier, Tuna & Gudgeon*.

Mackerel class (2 off) - Fleet Submarines

SM - *Mackerel* (1941): 1785pts STF 10/7 TR C 16kn, 11kn (submerged) Test depth 288ft
 Submerged: 6x21-inch TT (4 bow, 2 aft) with 12 TTs. 1x3-inch/50, 2xHMG. AAFF 05.
 Radio, hydrophones, sonar. Crash dive 30 sec. 7,400nm@10kn surface.
 Others: (1941): *Marlin*.

Gato class (77 off, 1941-44) - Fleet Submarines

SM - *Gato* (1941): 3615pts STF 13/9 TR C 20kn, 8.5kn (submerged) Test depth 300ft
 Submerged: 10x21-inch TT (6 bow, 4 aft) with 24 TTs. 1x3-inch/50, 2xHMG. AAFF 05. Up to 40 mines.
 Radio, hydrophones, sonar. Crash dive 40 sec. 11,800nm@10kn surface. 95nm@5kn submerged.
 Upgrade: (1942) Radar installed, now 1x5-inch/25 (or 1x4-inch/50), 2x20mm AA. AAFF 05. Crash dive 50 sec.

Balao class (106 off completed, 1943-45) - Fleet Submarines

SM - *Balao* (1943): 3586pts STF 13/9 TR C 20kn, 8.5kn (submerged) Test depth 400ft
 Submerged: 10x21-inch TT (6 bow, 4 aft) with 24 TTs. 1x5-inch/25 (or 1x4-inch/50), 2x20mm AA. AAFF 05.
 Up to 40 mines. Radar, radio, hydrophones, sonar. Crash dive 50 sec.
 11,800nm@10kn surface. 95nm@5kn submerged.

Tench class (18 off completed, 1944-45) - Fleet Submarines

SM - *Tench* (1944): 3642pts STF 13/9 TR C 20kn, 8.5kn (submerged) Test depth 400ft
 Submerged: 10x21-inch TT (6 bow, 4 aft) with 24 TTs. Surface: 1x5-inch/25, 2x20mm AA. AAFF 05.
 Alternative: 2x5-inch/25, 2x40mm AA. AAFF 10. Up to 40 mines, in lieu of torpedoes.
 Radar, radio, hydrophones, sonar. Crash dive 50 sec. 12,00nm@10kn surface. 95nm@5kn submerged.

AMERICAN AMPHIBIOUS VESSELS:

Landing Ships, Vehicle (6 off, 1944-45)

LSV-1 *Catskill* (May 1943/Apr 1944): 5,876pts STF 24/16 TR B 20kn AAFF 42
 2x5-inch/38 DP, 8x40mm, 20x20mmAA. 1,500t & 300 troops.
 Rear ramp capable of launching 15 DUKWs. Others: *LSV-1 to LSV-6*.

Ashland class (8 off, 1943-45) Landing Ships, Dock

LSD-1 *Ashland* (Jun 1943): 4,032pts STF 25/16 TR B 17kn AAFF 43
 1x5-inch/38 DP, 12x40mm, 16x20mmAA. Up to 850 troops. Up to 64 LVTs or 74 DUKWs.
 Rear ramp & well deck capable of holding up to 3xLCTs or 14xLCMs.
 Upgrade: (1945) temporary deck added above well deck. Up to 92 LVTs or 108 DUKWs.
 Others: *LSD-1 to LSD-8*.

Landing Ship Medium: (1944-1945, 474 built)

LSM - *LSM-1* (1944): 808pts STF 10/6 TR A 13kn AAFF 06
 2x40mm (Bofors), 2x20mm. Bow ramp.
 Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks, 6 LVTs, or 9 DUKWs.

Landing Ship Medium (Rocket): (1944-1945, 52 converted)

LSM(R) - *LSM(R)-188* (1944): 914pts STF 10/6 TR A 13kn AAFF 06
 1x5-inch/38, 2x40mm (Bofors), 3x20mm, 85 to 105xMk 51 Automatic Rockets in rails.

Landing Ship Tanks: (1942-45, 1051 completed during the war) known to RN as LST Mk 2.
LST - *LST-1* (Dec 1942): 3,285pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 2XLCVPs or 1xLCT on deck.
Carrying 1900tons, or 18 tanks & 27 vehicles.

LST - *LST-491* (Dec 1943): 3,606pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 6xLCVPs on deck.
Carrying 1900tons, or 18 tanks & 27 vehicles.

LST - *LST-542* (Feb 1944): 3,942pts STF 18/12 TR A 12kn AAFF 28
8x40mm (Bofors), 12x20mmAA. Bow ramp. 4xLCVPs on deck.
Carrying 18 tanks & 27 vehicles.

Landing Craft Flotilla Flagships: (49 off, 1943-1944) Modified LCI(L).
LCI(FF) - *LC(FF)* (1943): 350pts STF 7/5 TR A 16kn AAFF 04
4x20mmAA. Bow doors. Amphibious HQ offices and communications, up to 30 staff.

Landing Craft Infantry, (Gunboat): (1943-45, 218 completed) Converted from LCI(L).
LCI(G) - *LCI(G)* (1944): 345pts STF 7/5 TR A 16kn AAFF 04
3x40mm (Bofors), 6xHMG, 10xMk 7 Rocket Launchers (each 12 off). Fire support version of LCI.

Landing Craft Infantry, (Large): (1943-45, 923 completed)
LCI(L) - *LCI-1* (1943): 314pts STF 7/5 TR A 16kn AAFF 04
4x20mmAA. Bow doors. Carrying 200 men.

Landing Craft Infantry, (Mortar): (1945, 59 completed) Converted from LCI(L) & LCI(G).
LCI(M) - *LCI(M)* (1945): 352pts STF 7/5 TR A 16kn
3x4.2-inch Mortars. Mortar fire support version of LCI.

Landing Craft Infantry, (Rocket): (1945, 52 completed) Converted from LCI(L) & LCI(G).
LCI(R) - *LCI(R)* (1945): 322pts STF 7/5 TR A 16kn
6x5-inch Rocket Launchers. Rocket fire support version of LCI.

Landing Craft Support: (1944-45, 130 completed) Later version of the LCI(G).
LCS(L) - *LCS(L)* (1944): 375pts STF 7/5 TR A 17kn
1x3-inch/50, 6x40mm (Bofors), 4x20mm, 4xHMG, 10xMk 7 Rocket Launchers (each 12 off).

Landing Craft Tank, Mk V: (1942-45, 470 completed)
LCT - *LCT-1* (1942): 388pts STF 7/5 TR A 16kn AAFF 04
4x20mmAA. Bow ramp. Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks or 9 trucks.

Landing Craft Tank, Mk VI: (1943-45, 960 completed, ~80 used by RN under Lend-Lease) USN version.
LCT - *LCT-501* (1943): 394pts STF 7/5 TR A 16kn AAFF 05
5x20mmAA. Bow ramp. Carrying 150 tons, 3 Heavy Tanks, 5 Medium Tanks or 9 trucks.

Landing Craft Control (1943-45, over 99 built)
LCC (1943) 45pts STF 2/1 13kn 3xHMG. Crew only.

Landing Craft Mechanised (1942-45, over 11,300 built) based upon RN designs.
LCM Mk II (1942) 39pts STF 2/1 7kn 2xMG. Carrying 1 Medium Tank, 55 men or 27 tons.
LCM Mk III (1942) 35pts STF 2/1 7kn 2xMG. Carrying 1 Medium Tank, 60 men or 30 tons.
LCM Mk VI (1943) 52pts STF 2/1 9kn 2xMG. Carrying 1 Medium Tank, 75 men or 35 tons.

Landing Craft Personnel (1941-45, over 4,800 built)
LCP(L) (1941) 10pts STF 2/1 8kn 2xMG. Carrying 36 men or 4 tons.
LCP(R) (1942) 10pts STF 2/1 8kn 2xMG. Carrying 36 men or 4 tons. Ramp version.

Landing Craft Support (Small) (1941-43, over 558 built)
LCS(S) (1941) 15pts STF 2/1 10kn 2xMG. Two beach barrage (4.5-inch) rocket launchers.

Landing Craft Vehicle (1941-43, over 2,366 built)
LCV (1941) 12pts STF 2/1 9kn 1xMG. Carrying 1 light gun & 1 ton truck with 12 crew,
or 36 men or 5 tons. With bow ramp.

Landing Craft Vehicle & Personnel (1942-45, over 23,000 built)
LCVP (Nov 1942) 12pts STF 2/1 9kn 2xMG. Carrying 1 light gun & 1 ton truck with 12 crew,
or 36 men or 4 tons. With bow ramp.

Landing Vehicles Tracked - Unarmoured (1942-45)
LVT(I) (Feb 1942) 12pts STF 2/1 4kn/15mph (land) 2xMG.
Carrying 20 men or 4.5 tons. over 1,225 built, 1942-43.
LVT(II) (Jun 1943) 16pts STF 2/1 5kn/25mph (land) 2xMG.
Carrying 24 men or 6.5 tons. over 2,962 built, 1943-44.
LVT(III) (Jan 1945) 19pts STF 2/1 5kn/25mph (land) 2xMG.
Carrying 24 men or 8 tons. Over 2,964 built, 1944-45.

LVT(IV) (Apr 1944) 16pts STF 2/1 5kn/15mph (land) 8xMG.
 Carrying 24 men or 6.5 tons. With stern ramp. over 8,350 built, 1944-45.

Landing Vehicles Tracked - Armoured (1942-45)

LVT(A)-I (late 1942) 22pts STF 2/1 5kn/25mph (land) 37mm Mk6 in turret, 3xMG.
 Carrying up to 1 ton. over 510 built, 1942-44.

LVT(A)-II (Jun 1943) 17pts STF 2/1 5kn/25mph (land) 37mm Mk6 in turret, 3xMG.
 Carrying up to 1 ton. Heavier armour than I. over 450 built, 1943-44.

LVT(A)-IV (Apr 1944) 25pts STF 2/1 5kn/15mph (land) 75mm in M8 open turret, 4xMG.
 Carrying up to 5 tons. over 1,890 built, 1944-45.

Amphibious Trucks

DUKW (Oct 1942) 9pts STF 2/1 5kn/50mph (land) 1xMG.
 Carrying 12 men or 5 tons. over 20,000 built, 1942-45.

AMPHIBIOUS FORCE COMMAND SHIPS (AGC)

AGC-1 *Appalachian* (1943): 7,234pts(grt) STF 24/15 TR B 17kn AAFF 36
 2x5-inch/38 DP, 8x40mm, 14x20mm AA. Up to 175 troops. 2xLCVP, 4xLCPL, 2xLCPR & 2xLCC.
 Latest command & communications systems. Latest radars.
 Others: AGC-1 to AGC-5, AGC-7 to AGC-15 similar. (14 off, 1943-44).

ATTACK TRANSPORTS (AP) - (Early Pacific incl. Guadalcanal Aug 1942)

AP-9 *Zeilin* (1941): 13,529pts(grt) STF 29/19 TR A 17kn AAFF 40
 4x3-inch/50 DP, 2x40mm, 4x28mm, 20x20mm AA. Up to 1,500 troops with equipment & LC.
 Others: AP-35 *American Legion* (1941).

AP-10 *McCawley* (1941): 9,304pts(grt) STF 27/17 TR A 17kn AAFF 38
 4x3-inch/50 DP, 4x40mm, 18x20mm AA. 1,700t, 1,400 troops. 2xLCM, 23xLCVP, 1xLCPL & 1xLCPR.
 Others: AP-11 *Barnett* (1941).

AP-12 *Heywood* (1941): 8,789pts(grt) STF 28/18 TR A 17kn AAFF 36
 4x3-inch/50 DP, 4x40mm, 16x20mm AA. 2,900t, 1,300 troops. 4xLCM, 21xLCVP, 1xLCPL & 1xLCPR.
 Others: AP-14 *Fuller* (1940), AP-16 *Neville* (1940).

AP-13 *George F. Elliott* (1941): 7,431pts(grt) STF 28/18 TR A 11kn AAFF 23
 1x5-inch/38, 4x3-inch AA, 8xHMG. Up to 1,500 troops with equipment & LC.

AP-27 *Hunter Liggett* (1941): 14,174pts(grt) STF 29/19 TR A 16kn AAFF 43
 4x3-inch/50 DP, 4x40mm, 8x28mm, 15x20mm AA. 3,500t, 1,500 troops. 2xLCM, 33xLCVP

AP-37 *President Jackson* (1942): 10,210pts(grt) STF 27/18 TR A 17kn AAFF 36
 4x3-inch/50 DP, 6x40mm, 12x20mm AA. 3,500t, 1,500 troops. 4xLCM, 23xLCVP, 2xLCPL & 1xLCPR.
 Others: AP-38 *President Adams* (1941) & AP-39 *President Hayes* (1941).

AP-40 *Crescent City* (1941): 8,429pts(grt) STF 27/18 TR A 17kn AAFF 38
 4x3-inch/50 DP, 6x40mm, 14x20mm AA. Up to 1,500 troops with equipment & LC.

ATTACK CARGO SHIPS (AK)

AK-18 *Betelgeuse* (1941): 7,476pts(grt) STF 25/16 TR A 15kn AAFF 49
 1x5-inch/38, 4x3-inch AA, 8x40mm, 18x20mm. 4,500t. Troops & LC.

AK-20 *Bellatrix* (1941): 5,616pts(grt) STF 25/16 TR A 16kn AAFF 33
 1x5-inch/38, 4x3-inch AA, 18x20mm. 4,500t. 55 troops. 8xLCM, 9xLCVP & 1xLCPL.

AK-22 *Fomalhaut* (1942): 4,036pts(grt) STF 24/16 TR A 11kn AAFF 31
 1x5-inch/51, 4x3-inch AA, 2x40mm, 12x20mm. 4,500t. 175 troops. 2xLCM, 8xLCVP & 2xLCPL.

AK-23 *Alchiba* (1941): 7,293pts(grt) STF 25/16 TR A 11kn AAFF 31
 1x5-inch/38, 4x3-inch AA, 16x20mm. 4,500t. Troops & LC.

AK-26 *Alhena* (1941): 7,151pts(grt) STF 25/16 TR A 16kn AAFF 37
 1x5-inch/38, 8x40mm, 18x20mm. 4,500t. 175 troops. 8xLCM, 10xLCVP & 1xLCPL.

AK-53 *Libra* (1942): 6,973pts(grt) STF 25/16 TR A 15kn AAFF 47
 1x5-inch/38, 8x40mm, 18x20mm, 10xHMG. 4,500t. 75 troops. 9xLCM, 10xLCVP & 1xLCPL.

AUXILIARY FLEET OILERS (AO)

Early Fleet Oiler (Coral Sea & Guadalcanal Aug 1942)

AO-1 *Kanawha* (1915): 5,950pts(grt) STF 26/17 TR A 14kn AAFF 18
 2x5-inch/38 DP, 4x40mm, 4x20mm AA. Fuel 9,000t.

Cimarron class (35 off, 1939-45)

AO-22 *Cimarron* (1939): 7,590pts(grt) STF 30/20 TR A 18kn AAFF 24
 4x5-inch/38 DP, 4x40mm, 4x20mm AA. Fuel 17,500t.
 Others: AO-24 *Platte* (1939), AO-25 *Sabine* (1940), & AO-27 *Kaskaskia* (1940).

AO-23	<i>Neosho</i> (1941):	7,590pts(grt)	STF 30/20	TR A	18kn	AAFF 16
	4x5-inch/38 DP, 4x20mm AA. Fuel 17,500t.					

AUXILIARY SEAPLANE TENDERS (AVP)

Bird class (9 off, 1918-19, 1935-36) Converted from minesweepers

AVP-1	<i>Lapwing</i> (1918/1935):	1447pts	STF 8/5	TR B	14kn	AAFF 07
	2x3-inch/50 DP, 2xMG. 50,000t fuel. Aviation support gear.					

US MERCHANT VESSELS

Liberty class (total 2,710 built)

SMS -	<i>Thomas T. Tucker</i> (Sep 1942):	7,176pts(grt)	STF 24/16	TR A	11kn	AAFF 10
	1x4-inch HA, 1x3-inch AA, 4xHMG. (Houston, War Shipping Administration).					
	Others: <i>Empire Glade</i> , <i>Empire Faith</i> (CAM).					

Small Cargo C1-A class (65 built)

MV/SMS -	<i>Liscombe Lykes</i> (Jan 1941):	5,028pts(grt)	STF 22/15	TR A	14kn	AAFF 09
	1x3-inch/50 DP, 6x20mm. (Sparrows Pt MD).					

Small Cargo C1-B class (95 built)

MV/SMS -	<i>Cape Constance</i> (Jul 1943):	6,750pts(grt)	STF 23/15	TR A	14kn	AAFF 09
	1x3-inch/50 DP, 6x20mm. (Wilmington CA).					

Small Cargo C1-M class (Pacific Cargo Ships - approx 233 built with numerous conversions)

MV/SMS -	<i>Alamosa</i> (Aug 1944):	5,032pts(dwt)	STF 18/12	TR A	11kn	AAFF 09
	1x3-inch/50 DP, 6x20mm. (Richmond CA).					

Small Cargo C2 class (Pacific Cargo Ships - approx 328 built with numerous conversions)

MV -	<i>Aldebaran</i> (Dec 1940):	5,443pts(dwt)	STF 25/16	TR A	16kn	AAFF 25
	1x5-inch DP, 4x3-inch AA, 10x20mm AA. Commissioned by USN as AF-10 in Apr 1941.					

MV -	<i>Sea Witch</i> (Jul 1940):	6,021pts(grt)	STF 24/16	TR A	16kn	
	No armaments fitted. Requisitioned by WSA Jan 1942 as aviation transport.					

MERCHANT SHIP CHARACTERISTICS

FOREIGN OCEAN LINERS

SS -	<i>Pennland</i> (1924):	10,614pts	STF 32/21	TR A	16kn	Dutch Ocean liner
	(Holland America Line) Troopship carrying 2,000 men, (max. 2,800 men).					
SS -	<i>Westernland</i> (1922):	10,876pts	STF 32/21	TR A	16kn	Dutch Ocean liner
	(Holland America Line) Troopship carrying 2,000 men, (max. 2,800 men).					
MV -	<i>Sobieski</i> (1939):	7,280pts	STF 32/21	TR A	17kn	Polish Ocean liner
	(Gdynia America Line - GAL) Troopship carrying 2,000 men.					

NATIONAL AIRCRAFT CHARACTERISTICS

Each aircraft type/name has defined characteristics, representing the actual aircraft, seaplanes and flying boats. They are: aircraft name/type, designation (ie. SW for Swordfish), air combat factor, maximum speed, range, endurance, altitude and armament. The air characteristics also include air attack capabilities vs ships and land bases including level bombing (high or low altitude) dive bombing and torpedo bombing.

BRITISH AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF	DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
AN Avro Anson 1936-45 Land Based Recce	1	52	5/5	163kn /137kn Up to 360lb bombs	570nm/ 695nm	19,000 ft
MA Avro Manchester 1940-42 Land Based Medium Bomber	3	50	7/6	230kn /176kn Up to 8,100lb bombs	1040nm/ 1434nm	19,200 ft
LA Avro Lancaster 1941-45 Land Based Heavy Bomber	4	126	8/6	252kn /185kn Up to 22,000lb bombs (915nm) or 14,500lb bombs	915nm/ 1460nm	24,500 ft
SK Blackburn Skua 1938-41 Carrier Based Dive Bomber	3	53	8/5	196kn /125kn 1x500lb bomb	580nm /	19,100 ft
BF Bristol Beaufighter 1940-45 Land Based Strike Fighter	6	85	9/6	280kn / 2x250lb bomb	1020nm /	26,500 ft
BFT Bristol Beaufighter TX 1943-45 Land Based Strike Fighter	6	85	9/7	266kn / 1x18 or (US) 21-inch torpedo, or 2x250lb bombs	1302nm /	15,000 ft
BT Bristol Beaufort 1940-43 Land Based Torpedo Bomber	3	78	7/8	233kn /176nm 1x18-inch torpedo, or up to 1500lb bombs	910nm /1408nm	16,500 ft
BLi Bristol Blenheim I 1937-41 Land Based Light Bomber	3	60	6/6	230kn /176kn Up to 1000lb bombs	990nm /	27,280 ft
BLiv Bristol Blenheim IV 1940-42 Land Based Light Bomber	3	63	6/8	234kn /180kn Up to 1320lb bombs	1285nm /	22,000 ft
BO Bristol Bombay 1939-41 Land Based Bomber Transport	2	55	5/12	167kn /140kn Up to 2000lb bombs or 24 personnel	1935nm /	25,000 ft
CT Consolidated Catalina PBV-5 1940-42 Shore Based Patrol Flying Boat	4	90	6/20	166kn / 100kn 2x18-inch torpedo, or 4x1000lb bombs, or 8x420lb DC	1400nm /2630nm	18,100 ft
LB Consolidated Liberator I (B-24) 1941-45 Shore Based Heavy Bomber	6	119	8/15	266kn / 176kn Up to 8,800lb bombs, or DCs	871nm /2508nm	28,000 ft
SW Fairy Swordfish I/II 1936-45 Carrier Based Torpedo Bomber	1	46	4/8	120kn / 90kn 1x18-inch torpedo, or 3x500lb bombs, or 4x420lb DC	450nm /895nm	12,400 ft
AL Fairy Albacore 1940-43 Carrier Based Torpedo Bomber	1	59	5/10	150kn /100kn 1x18-inch torpedo, or 4x500lb bombs, or 4x420lb DC	550nm /900nm	20,700 ft

FF Fairy Fulmar I/II 1940-45	Carrier Based Fighter	6 63	7/7	230kn /150kn	690nm /	23,900 ft
SG Gloucester Sea Gladiator 1939-42	Carrier Based Fighter	6 41	7/3	220kn /180kn	278nm /360nm	32,300 ft
GL Gloucester Gladiator 1939-42	Land Based Fighter	6 41	7/3	225kn /180kn	290nm /380nm	33,500 ft
MA Grumman Martlet 1941-44	Carrier Based Fighter	9 52	8/6	262kn /130kn	744nm /1190nm	34,900 ft
HP Handley-Page Hampden I 1938-43	Land Based Medium Bomber	3 75	7/7	223kn /147kn	1056nm / 1658nm	19,000 ft 1x18-inch torpedo, or up to 4,000lb bombs
HF Handley-Page Halifax I 1940-44	Land Based Heavy Bomber	3 129	7/7	233kn /	1085nm / 1636nm	22,800 ft Up to 13,000lb bomb
SH Hawker Sea Hurricane I/II 1941-45	Carrier Based Fighter	9 53	8/4	300kn /185kn	405nm /900nm	25,600 ft 2x250lb bombs
HR Hawker Hurricane I/II 1941-45	Land Based Fighter	9 53	8/3	300kn /185kn	265nm /520nm	36,000 ft 2x250lb bombs
HD Lockheed Hudson I 1939-45	Land Based Recce	3 75	7/10	216kn /150kn	1900nm /	22,000 ft Up to 1,000lb bombs, or 2x420lb DC
MY Martin Maryland 1940-42	Land Based Light Bomber	3 60	8/6	264kn /216kn	1100nm /	29,500 ft Up to 2000lb bombs
LD Saro London II 1936-40	Shore Based Recce Flying Boat	2 73	4/13	136kn /113kn	968nm /1530nm	19,900 ft Up to 2,000lb or 4x420lb DC
SU Short Sunderland 1938-45	Shore Based Recce Flying Boat	6 126	8/13	187kn /118kn	2622nm /	17,900 ft Up to 2,000lb or 4x420lb DC
SFii Supermarine Seafire II 1942-45	Carrier Based Fighter	10 51	10/3	295kn /190kn	440nm /600nm	24,000 ft Up to 1,500lb bombs
SFiii Supermarine Seafire III 1942-45	Carrier Based Fighter	10 52	10/4	310kn /190kn	500nm /675nm	32,000 ft 1x500lb or 2x250lb bombs
SP Supermarine Spitfire 1941-45	Land Based Fighter	10 51	10/2	320kn /185kn	216nm /416nm	36,500 ft
WA Supermarine Walrus II 1934-45	Ship Based Recce Flying Boat	1 50	3/8	120kn /84kn	530nm /	18,500 ft
VA Vickers Valentia 1934-44	Land Based Night Bomber / Transport	1 58	4/8	110kn /100kn	700nm /	16,250 ft Up to 2,200lb bombs
VI Vickers Vildebeeste IV 1937-42	Land Based Torpedo Bomber	2 49	4/9	137kn /106kn	1090nm /	17,000 ft 1x18-inch torpedo, or up to 1000lb bombs
WE Vickers Wellington 1937-45	Land Based Long Range Bomber	4 92	8/12	203kn /145kn	1056nm /2244nm	18,000 ft Up to 4,500lb bombs
LY Westland Lysander 1938-45	Land Based Army Cooperation	1 50	4/6	190kn /	520nm /	26,000 ft Up to 500lb bombs

DUTCH AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF	DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Dornier Do 24 1937-45	3	85	6/12	180kn / 159kn Up to 2,600lb bombs (Multi-Purpose)	1600nm /2500nm	24,600 ft
Fokker C-VII-W 1928-42	1	72	3/7	86kn /70kn 1x18-inch torpedo, bombs or DCs	/485nm	10,500 ft
Fokker C-XI-W 1935-42	1	50	4/10	150kn /130kn	/360nm	22,300 ft
Fokker D-XXI 1936-42	7	43	7/6	250kn /232kn	500nm/	37,240 ft
Fokker G-I Reaper 1937-42	9	66	8/8	256kn / Up to 660lb bombs	820nm/	33,000 ft
Fokker T-IV 1927-42	2	70	4/10	140kn /116kn 1x18-inch torpedo or 1,764lb bombs or DCs	840nm/	19,400 ft
Fokker T.V 1938-42	2	68	7/8	225kn /181kn Up to 2,645lb bombs	840nm/	28,050 ft
Fokker T-VIII 1939-45	1	88	4/10	154kn / 1x18-inch torpedo or 1,323lb bombs or DCs	/485nm	10,500 ft

Note: the Netherlands also used various types of US and German type aircraft during the war.

FRENCH AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF	DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Besson MB-411 1935-41	-	29	4/4	103kn /71kn	216nm /355nm	16,400 ft
Bloch 200 1934-41	1	69	4/8	150kn / Up to 2,646lb bombs	540nm/	26,000 ft
Bloch 152 1939-41	8	48	7/6	275kn /240kn Up to 2,746lb bombs	320nm/	33,000 ft
Breguet Bre 521 Bizerte 1939-42	2	97	4/14	133kn /90kn 4x165lb bombs	/1640nm	19,685 ft
C.A.M.S. 37 1927-40	1	49	4/7	92kn /50kn 4x165lb bombs	437nm/650nm	14,800 ft
C.A.M.S. 55 1930-40	2	70	4/9	105kn /81kn 2x165lb bombs	690nm/	11,200 ft
Dewoitine Navy Type D 1930-40	5	45	7/3	218kn /	425nm/	32,800 ft
Dewoitine D.501 1933-41	5	47	7/3	220kn /123kn	475nm/	33,165 ft
Dewoitine D.520 1939-41	8	48	8/3	300kn /218kn	546nm /760nm	36,090 ft

Gourdou-Leseu.	GL-812Hy	1 44	4/6	110kn /86kn	/306nm	20,000 ft
1929-40	Ship Based Float Plane			2x165lb bombs		
Gourdou-Leseu.	GL-832Hy	1 36	4/6	106kn /	/319nm	16,405 ft
1940-41	Ship Based Float Plane					
Latecoere	Laté 298	2 58	5/8	158kn /130kn	540nm /1203nm	18,000 ft
1938-41	Torpedo Bomber Float Plane			1x15.7-inch TT, or	1x1,500lb bombs.	
Levasseur	PL 7 Series 2	- 55	5/6	110kn /98kn	352nm /528nm	9,432 ft
1927-40	Carrier Based Torpedo Bomber (<i>Bearn</i>)			1x15.7-inch TT.		
Levasseur	PL 101	2 48	5/7	120kn /70kn	326nm /	14,800 ft
1929-36	Carrier Based Recon.					
Levasseur	PL 15	1 57	4/8	104kn /87kn	410nm /820nm	13,120 ft
1934-40	Torpedo Bomber Float Plane			1x15.7-inch TT, or	1x992lb and 2x330lb bombs.	
Loire	130M	1 48	5/6	121kn /90kn	614nm /675nm	19,585 ft
1936-41	Ship Based Float Plane			2x165lb bombs.		
Loire et Oliv.	LeO H-257bis	2 74	5/12	130kn /101kn	336nm /1100nm	26,000 ft
1934-40	Torpedo Bomber Float Plane			1x15.7-inch TT, or	1x904lb & 4x496lb bombs.	
Loire-Nieuport	LN 401	2 50	8/6	208kn /163kn	/656nm	31,164 ft
1939-41	Carrier Based Dive Bomber			Up to 496lb bombs.		
Poetz	452	1 43	4/5	119kn /	/340nm	18,040 ft
1932-40	Ship Based Float Plane					

GERMAN AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Arado AR 95	1 53	3/5	88kn /	/270nm	23,950 ft
1938-41	Torpedo Recce. Floatplane		1 x 1,102lb bomb	(1 torpedo)	
Arado AR 195	1 47	4/7	158kn / 136kn	/355nm	19,685 ft
planned	Carrier Based Torpedo Bomber		1 x 1,102lb bomb	(1 torpedo)	
Arado AR 196	1 51	4/6	171kn / 146kn	437nm /	22,965 ft
1939-45	Land Based Fighter Bomber		2 x 110lb bombs		
Arado AR 197	6 46	7/3	218kn / 194kn	380nm /895nm	28,215 ft
planned	Carrier Based Fighter Bomber		4 x 110lb bombs		
Blohm & Voss BV 138	2 107	6/12	156kn / 128kn	667nm /2349nm	16,400 ft
1941-44	Shore Based Flying Boat		3 x 110lb bombs		
Dornier Do 15	2 75	7/10	120kn / 104kn	1202nm /	9,840 ft
1934-38	Shore Based Flying Boat		4 x 110lb bombs		
Dornier Do 17E	3 69	6/9	194kn / 143kn	545nm /820nm	16,370 ft
1937-43	Land Based Medium Bomber		Up to 1,650lb bombs		
Dornier Do 18	2 79	6/12	146kn / 90kn	/1914nm	13,800 ft
1938-41	Shore Based Flying Boat		2 x 110lb bombs		

Dornier Do 217E 1941-43	3 94 Land Based Heavy Bomber	7/9	282kn / 215kn 8 x 551lb & 4 x 1,102lb bombs	1258nm /1531nm	24,000 ft
Dornier Do 24 1937-45	3 85 Shore Based Flying Boat	6/12	180kn / 159kn Up to 2,600lb bombs (Multi-Purpose)	1600nm /2500nm	24,600 ft
Fieseler Fi 167A-O 1940-43	1 55 Carrier Based Torpedo Bomber	5/9	175kn / 136kn 4 x 110lb & 1 x 551lb bombs (1 torpedo)	492nm /820nm	25,000 ft
Focke-Wulf FW 190A 1941-45	10 61 Land Based Fighter Bomber	10/5	354kn / 262kn 4 x 110lb bombs	398nm /818nm	33,800 ft
Focke-Wulf FW 190D 1942-43	12 61 Land Based Fighter Bomber	10/4	349kn / 4 x 110lb bombs	/457nm	33,800 ft
Focke-Wulf FW 200C Condor 1940-45	5 112 Land Based Recce. Bomber	7/14	197kn / 139kn 12 x 110lb bombs	1945nm /2429nm	19,000 ft
Heinkel He 45C 1933-42	1 49 Land Based Light Bomber	4/7	158kn / 114kn Up to 660lb bombs	/655nm	18,045 ft
Heinkel He 50A 1935-42	1 43 Land Based Dive Bomber	4/5	126kn / 101kn Up to 1,102lb bombs	/328nm	21,000 ft
Heinkel He 51B 1934-37	6 41 Land Based Fighter	6/4	180kn / 142kn	/311nm	25,260 ft
Heinkel He 59B 1934-43	2 72 Shore Based Torpedo Seaplane	4/7	120kn / 98kn 2 x 1,102lb bombs (1 torpedo)	515nm /836nm	11,480 ft
Heinkel He 111B 1937-44	4 78 Land Based Medium Bomber	6/2	202kn / 178kn 8 x 220lb bombs	906nm /	22,966 ft
Heinkel He 111E 1938-45	4 81 Land Based Medium Bomber	6/2	230kn / 178kn 8 x 551lb bombs	820nm /	23,620 ft
Heinkel He 111H 1939-45	4 93 Land Based Medium Bomber	6/2	200kn / 180kn 16 x 110 + 1 x 2,205lb bombs (2 torpedoes)	1066nm /	21,980 ft
Heinkel He 114A 1937-43	1 51 Shore Based Recce. Floatplane	7/8	183kn / 148kn 2 x 110lb bombs	/502nm	16,075 ft
Heinkel He 115 1939-42	6 83 Shore Based Torpedo Seaplane	7/13	164kn / 148kn 5 x 551lb bombs (1 x torpedo)	1364nm /1531nm	16,950 ft
Henschel Hs 123A 1938-43	1 42 Land Based Dive Bomber	4/8	186kn / 170kn 4 x 110lb bombs	/470nm	29,525 ft
Junkers Ju 52 1933-45	1 45 Land Based Transport	5/8	230kn / 130kn	/940nm	19,360 ft
Junkers Ju 86D 1936-43	3 73 Land Based Medium Bomber	6/8	178kn / 150kn 8 x 220lb bombs	623nm /1091nm	19,360 ft
Junkers Ju 87B 1938-42	2 55 Land Based Dive Bomber	7/6	209kn / 154kn 1 x 1,102lb bombs	325nm /431nm	26,250 ft
Junkers Ju 87D 1942-45	2 64 Land Based Dive Bomber	7/6	224kn / 156kn 1 x 1,102lb bombs	449nm /839nm	23,905 ft

Junkers Ju 88A 1939-45	3 97 Land Based Multi-Role Bomber	7/8	256kn / 202kn 10 x 110lb + 4 x 551lb bombs	978nm /1492nm	26,900 ft
Junkers Ju 188E 1943-45	3 97 Land Based Medium Bomber	8/8	273kn / 202kn 4 x 1,102lb bombs (2 torpedoes)	1064nm /	30,655 ft
Messerschmidt Me 109B 1935-40	10 42 Land Based Fighter	10/4	242kn / 190kn	/378nm	26,900 ft
Messerschmidt Me 109D 1939-41	10 45 Land Based Fighter	10/4	314kn / 190kn	/306nm	32,810 ft
Messerschmidt Me 109E 1940-42	10 46 Land Based Fighter	10/4	300kn / 180kn	/361nm	30,655 ft
Messerschmidt Me 109F 1941-42	12 47 Land (& Carrier) Based Fighter	10/5	314kn / 193kn 1 x 551lb bomb	/500nm	34,450 ft
Messerschmidt Me 109G 1942-45	12 50 Land Based Fighter	12/5	350kn / 283kn	299nm /464nm	39,370 ft
Messerschmidt Me 110C 1939-44	9 68 Land Based Fighter	10/8	295kn / 190kn	594nm /	32,810 ft
Messerschmidt Me 110D 1940-44	9 64 Land Based Fighter	10/10	282kn / 182kn	909nm /1094nm	32,810 ft

ITALIAN AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Breda Ba.65 1936-39	7 47 Land Based Fighter Bomber	7/3	227kn / Up to 2,205lb bombs	300nm /620nm	25,590 ft
Breda Ba.88 Lince 1938-43	3 70 Land Based Attack Bomber	8/8	268kn / 233kn Up to 2,205lb bombs (unstable when armed)	898nm /	26,250 ft
CANT Z.501 Gabbiano 1935-40	1 64 Shore Based Flying Boat	4/12	150kn / 132kn Up to 1,410lb bombs	/1311nm	22,965 ft
CANT Z.506B Airone 1938-43	2 94 Shore Based Flying Boat	6/7	200kn / 164kn 1x17.7-inch torpedo, Up to 2,645lb bombs	1094nm /	26,240 ft
CANT Z.1007 Alcione 1938-43	3 97 Land Based Medium Bomber	8/8	249kn / 183kn 2x17.7-inch torpedoes, Up to 2,645lb bombs	/980nm	24,600 ft
Caproni Ca.310 Libeccio 1938-43	2 58 Land Based Light Bomber	6/5	200kn / 176kn Up to 882lb bombs	902nm /	22,965 ft
Fiat CR.32 Freccia 1934-41	5 41 Land Based Fighter	6/3	195kn / 2x110lb bombs	410nm /	25,256 ft
Fiat G.50 Freccia 1938-43	7 41 Land Based Fighter	7/6	250kn / 2x110lb bombs	240nm /	35,100 ft
Fiat CR.42 Falco 1939-43	6 44 Land Based Fighter	7/3	234kn / 188kn 1x440lb bombs	429nm /554nm	33,300 ft

Fiat BR.20 Cicogna 1937-43	3 82	9/8	255kn / 185kn Up to 3,528lb bombs	429nm /1504nm	33,300 ft
Fiat RS.14 1941-43	3 76	6/8	212kn / 180kn	/1366nm 4x220lb bombs, or 2x353lb DC	15,400 ft
IMAM Ro.43 1939-43	1 45	4/6	164kn / 100kn	440nm /820nm	21,650 ft
IMAM Ro.44 1940-43	2 44	4/6	170kn / 100kn	260nm /655nm	21,650 ft
Macci MC.200 Saetta 1939-43	8 46	8/3	275kn / 245kn 1x550lb bomb	315nm /475nm	29,200 ft
Macci MC.202 Folgore 1941-43	10 51	10/4	326kn / 2x220lb bomb	418nm /	37,730 ft
Reggione Re.2000 Falcon I 1941-43	7 48	9/3	290kn /235kn	/602nm	36,745 ft
Reggione Re.2001 Falcon II 1942-43	7 53	11/5	297kn /205kn	400nm /568nm	39,200 ft
Savoia-Marchetti SM.79 Sparviero 1936-43	3 95	7/8	235kn / 205kn	1038nm /1150nm 2x17.7-inch torpedoes, Up to 2,750lb bombs	21,320 ft
Savoia-Marchetti SM.81 Pipistrello 1934-42	3 90	6/8	180kn / 140kn	810nm /1100nm Up to 4,409lb bombs	23,000 ft
Savoia-Marchetti SM.82 Marsupiale 1940-45	3 80	6/8	187kn / 130kn	810nm /1100nm Up to 4,409lb bombs	20,000 ft
Savoia-Marchetti SM.84 1941-43	4 102	7/8	252kn /	990nm / 2x17.7-inch torpedoes, Up to 4,410lb bombs	25,900 ft

JAPANESE AIRCRAFT CHARACTERISTICS

Manufacturer, Name	AF DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Aichi D1A-1 Susie 1935-40	2 40	8/6	151kn /110kn 1x551lb & 2x661lb bombs	570nm /	22,965 ft
Aichi D1A-2 Susie 1937-40	2 42	8/6	167kn /120kn 1x551lb & 2x661lb bombs	576nm /	22,900 ft
Aichi D3A-1 Val 1940-43	2 52	9/7	209kn /160kn 1x551lb & 2x661lb bombs	795nm /	30,050 ft
Aichi D3A-2 Val 1942-44	2 53	9/7	232kn /162kn 1x551lb & 2x661lb bombs	730nm /	34,450 ft
Aichi B7A-2 Grace 1944-45	4 64	9/9	306kn /	1040nm / 1x18-inch torpedo or 2x551lb bombs	36,910 ft
Aichi E16A-1 Paul 1944-45	4 57	9/10	237kn /180kn 1x551lb	635nm /1307nm	32,810 ft

Aichi M6A-1 Serian 1944-45	2 60 Submarine Based Recce Bomber	8/7	256kn /160kn 2x551lb bombs	/642nm	32,480 ft
Aichi E13A-1 Jake 1941-44	3 54 Ship Based Recce Seaplane	5/9	203kn /120kn 1x551lb or 4x132lb bombs	/1128nm	28,640 ft
Kawanishi H6K-2 Mavis 1938-45	5 101 Shore Based Recce Flying Boat	8/23	179kn /120kn 2x18-inch torpedoes or up to 2,205lb bombs	2230nm /3000nm	24,935 ft
Kawanishi H6K-4 Mavis 1939-45	6 107 Shore Based Recce Flying Boat	8/26	183kn /120kn 2x18-inch torpedoes or up to 2,205lb bombs	2590nm /3283nm	31,530 ft
Kawanishi H8K-1 Emily 1942-45	6 122 Shore Based Recce Flying Boat	9/24	234kn /160kn 2x18-inch torpedoes or 8x551lb bombs	/3888nm	25,035 ft
Kawanishi H8K-2 Emily 1943-45	7 132 Shore Based Recce Flying Boat	9/24	252kn /160kn 2x18-inch torpedoes or 8x551lb bombs	/3862nm	29,035 ft
Kawanishi N1K-1 Rex 1943-45	10 55 Shore Based Flying Boat Fighter	10/7	264kn /200kn 2x66lb bombs	570nm /900nm	34,645 ft
Kawanishi N1K-1J George 1943-45	15 56 Shore Based Fighter	10/8	315kn /200kn 2x132lb bombs	773nm /1374nm	41,010 ft
Kawanishi N1K-2J George 1944-45	14 54 Shore Based Fighter	10/8	321kn /200kn 2x551lb bombs	926nm /1293nm	35,300 ft
Kawanishi E7K-1 Alf 1934-41	2 47 Shore Based Recce Seaplane	10/7	129kn /95kn 4x66lb or 2x132lb bombs	/900nm	23,000 ft
Kawanishi E7K-2 Alf 1938-43	2 49 Shore Based Recce Seaplane	10/7	149kn /100kn 4x66lb or 2x132lb bombs	/1103nm	23,165 ft
Kawasaki Ki-61 Tony 1942-45	10 48 Shore Based Fighter (IJA)	10/8	310kn / up to 2x551lb bombs	/310nm	38,100 ft
Kyushu Q1W Lorna 1943-45	4 58 Shore Based ASW Patrol Plane	8/7	174kn /130kn 2x551lb bombs	725nm /	14,730 ft
Mitsubishi A5M-1 Claude 1937-40	7 36 Carrier Based Fighter	6/4	219kn / 2x66lb bombs	404nm /	14,026 ft
Mitsubishi A5M-4 Claude 1938-42	7 38 Carrier Based Fighter	7/4	235kn / 2x66lb bombs	648nm /	32,150 ft
Mitsubishi A6M-2 Zeke 1940-43	9 44 Carrier Based Fighter	10/8	288kn /180kn 2x132lb bombs	1010nm /1670nm	32,810 ft
Mitsubishi A6M-3 Zeke 1942-44	10 45 Carrier Based Fighter	8/7	294kn /200kn 2x132lb bombs	820nm /1285nm	36,250 ft
Mitsubishi A6M-3a Zeke 1942-44	10 45 Carrier Based Fighter	10/8	294kn /200kn 2x132lb bombs	1000nm /1650nm	36,250 ft
Mitsubishi A6M-5 Zeke 1943-45	12 46 Carrier Based Fighter	10/8	305kn /200kn 2x132lb bombs	1037nm /1680nm	38,520 ft
Mitsubishi A6M-5a/b Zeke 1944-45	12 47 Carrier Based Fighter	10/8	315kn /200kn 2x132lb bombs	1000nm /1650nm	38,520 ft

Mitsubishi J2M-2 Jack	10 51	10/6	322kn /190kn	560nm /	36,000 ft
1943-45 Shore Based Fighter			2x132lb bombs		
Mitsubishi J2M-3 Jack	15 52	10/8	317kn /190kn	1025nm /	38,385 ft
1944-45 Shore Based Fighter			2x132lb bombs		
Mitsubishi G3M-1 Nell	3 71	8/8	188kn /140kn	/2200nm	29,950 ft
1936-41 Shore Based Bomber			1x18-inch torpedo or 2x551lb bombs		
Mitsubishi G3M-2 Nell	4 72	8/8	202kn /150kn	/2365nm	29,950 ft
1937-43 Shore Based Bomber			1x18-inch torpedo or 2x551lb bombs		
Mitsubishi G3M-3 Nell	4 74	8/12	225kn /160kn	/3363nm	33,730 ft
1939-43 Shore Based Bomber			1x18-inch torpedo or 2x551lb bombs		
Mitsubishi F1M-2 Pete	1 47	4/6	200kn /120kn	400nm /	30,970 ft
1938-44 Ship Based Recce Seaplane			2x132lb bombs		
Mitsubishi G4M-1 Betty	3 83	9/10	231kn /170kn	/3256nm	29,000 ft
1940-43 Shore Based Bomber			1x18-inch torpedo or up to 1764lb bombs		
Mitsubishi G4M-2 Betty	3 91	9/10	236kn /170kn	/3270nm	29,365 ft
1942-45 Shore Based Bomber			1x18-inch torpedo or up to 2205lb bombs		
Mitsubishi C5M-1 Babs (Ki-15)	1 51	9/7	260kn /170kn	/1300nm	37,400 ft
1937-45 Shore Based Recce Bomber			1x551lb bomb		
Mitsubishi Ki-21 Sally	3 72	10/8	262kn /210kn	/1500nm	33,000 ft
1938-45 Shore Based Bomber (IJA)			Up to 2205lb bombs		
Mitsubishi Ki-67 Peggy	5 92	10/8	290kn /220kn	/1500nm	31,070 ft
1944-45 Shore Based Bomber (IJA)			1x18-inch torpedo or up to 1764lb bombs		
Nakajima B5N-1 Kate	2 49	7/7	199kn /138kn	590nm /1220nm	24,280 ft
1937-41 Carrier Based Torpedo Bomber			1x18-inch torpedo or up to 1764lb bombs		
Nakajima B5N-2 Kate	2 50	7/7	204kn /140kn	528nm /1075nm	27,100 ft
1941-44 Carrier Based Torpedo Bomber			1x18-inch torpedo or up to 1764lb bombs		
Nakajima B6N-1 Jill	3 59	9/9	251kn /180kn	798nm /1860nm	28,380 ft
1943-45 Carrier Based Torpedo Bomber			1x18-inch torpedo or 1x1102lb bomb		
Nakajima B6N-2 Jill	3 59	9/9	260kn /180kn	943nm /1644nm	29,660 ft
1943-45 Carrier Based Torpedo Bomber			1x18-inch torpedo or 1x1102lb bomb		
Nakajima C6N-1 Myrt	1 57	10/10	329kn /210kn	1663nm /2866nm	35,266 ft
1944-45 Carrier Based Recce Fighter					
Nakajima J1N-1S Irving	6 71	10/9	274kn /180kn	1374nm /2040nm	30,610 ft
1943-45 Shore Based Escort Fighter					
Nakajima A6M-2N Rufe	6 47	9/6	235kn /160kn	629nm /963nm	32,810 ft
1942-45 Shore and Ship Based Recce Seaplane			2x132lb bombs		
Nakajima E8N-2 Dave	1 39	4/6	162kn /100kn	/485nm	23,850 ft
1936-42 Ship Based Recce Seaplane			2x66lb bombs		
Nakajima Ki-43 Oscar	9 45	10/8	290kn /240kn	/950nm	36,700 ft
1941-45 Shore Based Fighter (IJA)			2x66lb or as fighter/bomber with 2x551lb bombs		

Watanabe E9W-1 Slim 1938-42	1 34 Submarine Based Recce Seaplane	4/5	125kn /80kn	/395nm	22,100 ft
Yokosuka B4Y-1 Jean 1937-40	1 47 Carrier Based Torpedo Bomber	4/8	150kn / 1x18-inch torpedo or	850nm / up to 1102lb bombs	19,685 ft
Yokosuka D4Y-1 Judy 1942-45	1 52 Carrier Based Dive Bomber	11/6	298kn /230kn 1x551lb & 2x66lb bombs	850nm /2100nm	32,480 ft
Yokosuka D4Y-2 Judy 1944-45	1 54 Carrier Based Dive Bomber	11/6	313kn /230kn 1x551lb & 2x66lb bombs	790nm /1945nm	35,105 ft
Yokosuka E14Y Glen 1941-44	1 36 Submarine Based Recce Seaplane	4/6	133kn /90kn 2x168lb bombs	/476nm	17,780 ft
Yokosuka P1Y-1 Frances 1944-45	4 86 Carrier Based Medium Bomber	10/10	295kn /200kn 1x18-inch torpedo or up to	1036nm /2900nm 2205lb bombs	30,840 ft
Yokosuka P1Y-2 Frances 1945	4 89 Carrier Based Medium Bomber	10/8	282kn /200kn 1x18-inch torpedo or up to	876nm /2150nm 2205lb bombs	31,365 ft

SOVIET AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Arkhangelsky Ar-2 1940-43	2 62 Land Based Dive Bomber	11/6	277kn / Up to 3,530lb bombs	820nm /	34,400 ft
Beriev Be-2 (KOR-1) 1938-42	1 39 Ship Based Recce Seaplane	4/6	132kn / Up to 220lb bombs or DC	540nm /	21,654 ft
Beriev Be-4 (KOR-2) 1942-45	1 45 Ship Based Recce Seaplane	5/7	192kn / Up to 661lb bombs or DCs	622nm /	26,575 ft
Beriev MDR-2 1935-45	1 72 Shore Based Flying Boat	6/10	148kn /100kn Up to 661lb bombs or DCs	860nm /	20,000 ft
Chyetverikov Che-2 (MDR-6) 1941-42	1 82 Shore Based Flying Boat	6/20	195kn /119kn Up to 2,205lb bombs or DCs	1431nm /	29,530 ft
Ilyushen Il-2 Shurmovick 1941-44	3 64 Land Based Ground Attack Plane	7/3	220kn / 6x220lb bombs	413nm /	14,846 ft
Mikoyan-Gurevich Mig-1 1940-44	7 50 Land Based Fighter	9/3	355kn /	/310nm	39,000 ft
Mikoyan-Gurevich Mig-3 1941-44	7 55 Land Based Fighter	11/5	350kn / Up to 2x220lb bombs	/440nm	39,000 ft
Petlyakov Pe-2 1941-44	3 85 Land Based Dive Bomber	8/6	310kn / Up to 2,205lb bombs	630nm /	28,900 ft
Polikarpov I-15 1934-42	7 36 Land Based Fighter	6/4	198kn / 154kn Up to 220lb bombs	/280nm	32,200 ft
Polikarpov I-16 1935-45	7 46 Land Based Fighter	7/4	264kn / Up to 2x551lb bombs	/430nm	31,800 ft

Tupolev SB-2 1936-44	3 61 Land Based Light Bomber	6/8	240kn / 6x220lb bombs (+2x550lb bombs under wings)	1200nm /	30,500 ft
Tupolev Tu-2 1942-45	3 78 Land Based Light/Dive Bomber	7/8	285kn / Up to 8,300lb bombs	1090nm /	30,000 ft
Yakovlev Yak-1 1940-45	7 49 Land Based Fighter	8/5	320kn /	/380nm	32,970 ft
Yakovlev Yak-2 1941-45	8 73 Land Based Light Bomber	7/6	278kn / Up to 1,300lb bombs	/430nm	29,200 ft
Yakovlev Yak-3 1944-45	2 55 Land Based Fighter	9/5	350kn /	/300nm	34,100 ft

UNITED STATES AIRCRAFT CHARACTERISTICS

Abr., Manufacturer, Name	AF DF	MF/RF	Sp: Max/Cruise	Rge: Arm/Max	Max Alt
Boeing B-17C/D Fortress 1941-43	8 116 Land Based Heavy Bomber	8/12	280kn /204kn Up to 10,496lb bombs	1844nm /2780nm	37,000 ft
Boeing B-17E/F Fortress 1942-45	10 124 Land Based Heavy Bomber	7/12	246kn /140kn Up to 12,800lb bombs	1000nm /2411nm	31,500 ft
Boeing B-17G Fortress 1943-45	12 125 Land Based Heavy Bomber	7/14	265kn /140kn Up to 17,600lb bombs	1900nm /2992nm	35,600 ft
Boeing B-29 Superfortress 1944-45	10 169 Land Based Heavy Bomber	10/16	315kn /202kn Up to 20,000lb bombs	/4928nm	31,850 ft
Brewster F2A-3 Buffalo 1940-42	9 49 Land & Carrier Based Fighter	8/4	275kn /142kn	849nm /1478nm	33,200 ft
Bell P-39D Airacobra 1941-45	6 52 Land Based Fighter	11/5	317kn /200kn	528nm /968nm	32,100 ft
Curtiss SBC-4 Helldiver 1937-42	2 50 Carrier Based Scout Dive Bomber	8/6	208kn /112kn 1x500lb bomb (1x1000lb overload)	519nm /	27,300 ft
Curtiss SB2C-1 Helldiver 1943-45	4 66 Carrier Based Scout Dive Bomber	9/8	248kn /132kn 1x1000lb bomb	980nm /	28,500 ft
Curtiss SB2C-3/4 Helldiver 1944-45	4 71 Carrier Based Scout Dive Bomber	9/8	260kn /139kn 1x1000lb bomb (2x1000lb overload)	1025nm /	29,100 ft
Curtiss SOC-1/2 Seagull 1935-44	1 44 Ship Based Seaplane Scout	4/6	145kn /117kn 2x325lb bombs	594nm /	14,900 ft
Curtiss SO3C-2C Seamew 1942-44	1 49 Ship Based Seaplane Scout	4/8	151kn /110kn 1x500lb bomb	/1012nm	15,800 ft
Curtiss SC-1 Seahawk 1944-45	1 50 Ship Based Seaplane Scout	4/7	204kn /109kn 2x325lb bombs	625nm /	37,300 ft
Curtiss P-36 Hawk 1938-41	6 48 Shore Based Fighter	8/4	274kn /176kn	/722nm	33,700 ft

Curtiss P-40B 1940-42	7 53 Shore Based Fighter	11/5	310kn /240kn	642nm /832nm	32,400 ft
Curtiss P-40N Warhawk 1944-45	10 56 Shore Based Fighter Bomber	11/5	302kn /255kn 1x500lb bombs	660nm /950nm	31,000 ft
Consolidated PBV-2/3/4 Catalina 1937-42	4 83 Shore Based Patrol Flying Boat	6/18	157kn /91kn 4x1000lb bombs	1050nm /1857nm	20,800 ft
Consolidated PBV-5 Catalina 1940-45	4 90 Shore Based Patrol Flying Boat	6/20	166kn /100kn 4x1000lb bombs	1400nm /2531nm	18,100 ft
Consolidated PBN-1 Nomad 1943-45	4 94 Shore Based Patrol Flying Boat	6/20	164kn /98kn 4x1000lb bombs	/2279nm	15,100 ft
Consolidated B-24D Liberator 1942-45	6 119 Shore Based Heavy Bomber	8/15	266kn /176kn Up to 8,800lb bombs	871nm /2508nm	32,000 ft
Douglas TBD-1 Devastator 1937-42	2 55 Carrier Based Torpedo Bomber	6/5	181kn /112kn 1x18-inch torpedo or 1x500lb bomb	535nm /	19,700 ft
Douglas SBD-2 Dauntless 1941-43	3 56 Carrier Based Dive Bomber	9/6	195kn /120kn 1x1000lb bomb (1x1650lb bomb overload)	756nm /968nm	24,000 ft
Douglas SBD-3/4/5 Dauntless 1942-44	3 57 Carrier Based Dive Bomber	9/6	215kn /127kn 1x1000lb bomb (1x1650lb bomb overload)	970nm /1187nm	24,300 ft
Douglas A-20B Havoc 1941-44	3 83 Shore Based Light Bomber	9/6	308kn /245kn Up to 2600lb bombs	898nm /2024nm	28,600 ft
Douglas A-20G Havoc 1944-45	5 86 Shore Based Light Bomber	9/6	298kn /239kn Up to 4000lb bombs	898nm /1584nm	25,800 ft
Douglas B-18 Bolo 1939-42	3 87 Shore Based Medium Bomber	7/9	190kn /147kn Up to 6500lb bombs	780nm /1800nm	23,900 ft
Grumman J2F Duck 1936-45	1 45 Ship Based Seaplane Scout/Utility	5/6	170kn /135kn 2x100lb bombs or 325lb DCs	680nm /	20,000 ft
Grumman F4F-3 Wildcat 1941-43	9 52 Carrier Based Fighter	8/6	262kn /130kn 2x100lb bombs	744nm /1190nm	34,900 ft
Grumman F4F-4 Wildcat 1942-44	10 54 Carrier Based Fighter	8/6	280kn /136kn 2x100lb bombs	678nm /1015nm	34,900 ft
Grumman-Eastman FM-1/2 Wildcat 1943-45	10 52 Escort Carrier Based Fighter	8/6	292kn /144kn 2x250lb bombs (6x5-inch rockets)	792nm /1267nm	34,700 ft
Grumman F6F-3 Hellcat 1944-45	14 66 Carrier Based Fighter	8/7	300kn /145kn 1x drop tank	659nm /1400nm	37,300 ft
Grumman F6F-5 Hellcat 1944-45	16 67 Carrier Based Fighter	8/7	334kn /148kn 2x1000lb bombs (6x5-inch rockets)	832nm /1346nm	37,300 ft
Grumman F8F-1 Bearcat 1945	9 59 Carrier Based Fighter	8/7	370kn /144kn 2x1000lb bombs (2x drop tanks)	972nm /1555nm	38,700 ft
Grumman TBF/TBM-1 Avenger 1942-45	3 69 Carrier Based Torpedo Bomber	7/7	238kn /128kn 1x 22-inch torpedo or 2x1000lb bombs	1069nm /	22,400 ft

Grumman-Eastman TBM-3 Avenger	3 71	7/7	243kn /129kn	889nm /	30,100 ft
1943-45	Carrier Based Torpedo Bomber		1x 22-inch torpedo or 2x1000lb bombs		
Lockheed P-38F Lightning	7 76	12/5	348kn /193kn	792nm /1548nm	39,000 ft
1941-43	Land Based Fighter Bomber		2x500lb bombs		
Lockheed P-38J Lightning	7 77	13/5	364kn /250kn	704nm /1705nm	44,000 ft
1943-45	Land Based Fighter Bomber		2x1000lb bombs		
Lockheed PV-1 Ventura	4 96	7/7	274kn /144kn	1460nm /	26,300 ft
1942-45	Land Based Patrol Bomber		6x500lb bombs (2x1000lb bombs)		
Lockheed PV-2 Harpoon	5 97	7/7	248kn /150kn	1575nm /	23,900 ft
1944-45	Land Based Patrol Bomber		6x1000lb bombs		
Martin PBM Mariner	4 119	8/14	178kn /	2600nm /	19,800 ft
1940-45	Land Based Patrol Flying Boat		2x22-inch torpedoes or up to 4000lb bombs/DCS		
Martin B-26B Marauder	4 100	10/6	279kn /229kn	/1012nm	23,500 ft
1941-45	Land Based Patrol Bomber		Up to 5200lb bombs		
Martin B-26G Marauder	4 106	9/6	249kn /	/968nm	19,800 ft
1943-45	Land Based Patrol Bomber		Up to 4000lb bombs		
North American B-25B Mitchell	4 95	9/6	285kn /200kn	/1130nm	25,000 ft
1941-45	Land Based Medium Bomber		3000lb bombs (Doolittle raid 4x500lb bombs)		
North American B-25H Mitchell	4 95	9/7	242kn /202kn	/2376nm	23,800 ft
1944-45	Land Based Medium Bomber		3200lb bombs & 6x5-inch rockets or 1x22-inch torpedo		
North American P-51B Mustang	8 58	9/6	387kn /215kn	712nm /1936nm	42,000 ft
1943-45	Land Based Interceptor Fighter		Up to 2000lb bombs		
North American P-51D Mustang	10 59	9/6	384kn /220kn	1144nm /1760nm	41,900 ft
1944-45	Land Based Interceptor Fighter		Up to 2000lb bombs (6x5-inch rockets)		
Republic P-47D Thunderbolt	10 69	9/5	381kn /203kn	595nm /900nm	40,000 ft
1943-45	Land Based Escort Fighter		Up to 2500lb bombs (10x5-inch rockets)		
Vought F4U-1/2 Corsair	12 66	9/6	367kn /160kn	893nm /1374nm	36,900 ft
1942-45	Land & Carrier Based Fighter				
Vought F4U-4 Corsair	12 67	9/6	392kn /189kn	884nm /1374nm	41,500 ft
1943-45	Land & Carrier Based Fighter		2x500lb bombs		
Vought SB2U-3 Vindicator	3 53	7/5	214kn /134kn	461nm /986nm	23,600 ft
1940-42	Carrier Based Scout Dive Bomber		1x1000lb bomb (1x500lb bomb)		
Vought OS2U Kingfisher	1 46	4/8	144kn /105kn	708nm /	13,000 ft
1940-45	Ship Based Scout Floatplane				

NAVAL WEAPON CHARACTERISTICS

Naval Gun Characteristics

The naval gun characteristics include: size, calibre and mark/type of gun. A gun factor (probability of a 'standard' hit), maximum range (yards), and the equivalent damage points caused by a hit – either after penetration and internal detonation (ID) or without penetration as external detonation (ED). Gun characteristics include maximum armour penetration at long, medium and close ranges, and the actual ships and/or classes equipped with the gun.

Ranges are defined as – Long Range from 51% to 100% max range ($>\frac{1}{2}$ max), Medium Range 2000yds to 50% max range ($<\frac{1}{2}$ max), Close Range (< 2000 yds or 1nm).

(Sources: J. Campbell, *Naval Weapons of World War Two*, Naval Institute Press, 1985. In addition, for armour penetration, the *Okum Penetration Tables* were very useful.)

BRITISH GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
16-inch/45 Mk I	32%	39,800yds	6150/2050	13/24/30	Nelson, Rodney
15-inch/42 Mk I	30%	33,600yds	5820/1940	14/22/30	Barham, Revenge, etc
14-inch/45 MkVII	28%	38,600yds	4770/1590	12/21/29	KGV class
13.5-inch/45 MkV	24%	23,740yds	4200/1400	8/12/17	Old Orion, Lion
9.2-inch/47 Mks X & XI	21%	29,200yds	1140/380	4/11/18	Old Coastal Defence
8-inch/50 Mk VIII	32%	30,650yds	780/260	3/8/14	Kent class, & CAs
7.5-inch/45 Mk VI	30%	21,110yds	600/200	1/2/4	Frobisher, Hawkins
6-inch/50 Mk XXIII	40%	25,500yds	336/112	2/4/7	Leander class, & CLs
6-inch/50 Mk XXII	40%	25,800yds	300/100	2/4/7	Nelson secondaries
6-inch/45 Mk XII	33%	20,620yds	300/100	1/3/5	WWI, some BB & DD
6-inch/ (various)	30%	14,310yds	300/100	1/2/4	Old WWI unmodified
5.5-inch/50 Mk I	40%	17,770yds	246/82	1/3/5	Birkenhead, Chester
5.25-inch/50 QF Mk I	42%	24,070yds	240/80	1/3/5	Didos & KGV sec'd
4.7-inch/50 Mk XI & XIII	47%	21,240yds	180/60	1/2/4	L&M DD
4.7-inch/45 Mk IX & XII	43%	16,970yds	150/50	1/2/4	DDs & various sec'd
4.7-inch/40 Mk VIII	43%	16,160yds	150/50	1/2/4	Nelson, Courageous
4.7-inch/45 Mk I to V	40%	15,800yds	150/50	1/2/4	Older DDs (V&W)
4.5-inch/45 QF Mk III	42%	20,750yds	165/55	1/2/4	Various
4-inch/45 Mk XVI & XXI	47%	20,000yds	105/35	1/1/1	Modern QF types
4-inch/45 QF Mk V	40%	16,430yds	93/31	1/1/1	Pre 1930 QF types
4-inch/45 BL Mk IX	38%	13,840yds	93/31	1/1/1	Renown sec'd, DEMs
4-inch/40 MkXII,XIX&XXII	47%	10,000yds	105/35	1/1/1	Corvettes, DEs, QF
3-inch QF Mk I to IV	42%	13,000yds	54/18	0/0/1	HA AA Guns

DUTCH GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
5.9-inch/50 Bofors QF	42%	23,200yds	300/100	2/4/9	CL etc.
4.7-inch/50 QF	47%	19,500yds	156/52	1/2/4	DD etc.
4-inch British QF	47%	20,000yds	105/35	1/1/1	Various
3-inch QF AA Mk I to IV	42%	13,000yds	54/18	0/0/1	AA various

FRENCH GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
15-inch/45 M1935 [380mm]	30%	45,600yds	5850/1950	11/23/32	Richelieu, J-Bart
13.4-inch/45 M1912 [340mm]	25%	29,000yds	3804/1268	6/10/13	Bretag'n, Lorraine
13-inch/50 M1931 [330mm]	28%	45,600yds	3705/1235	9/20/29	Dunkerque, Strasb'g
12-inch/45 M1906-10 [305]	27%	28,790yds	2856/952	5/9/12	Courbert cl.
8-inch/50 M1924/31 [203mm]	32%	32,800yds	885/295	3/8/14	CA, Suffren etc.
6.1-inch/50 M1920 [155mm]	40%	28,540yds	375/125	3/5/9	Duguay-Beam
6-inch/55 M1930 [152mm]	40%	28,952yds	360/120	2/4/7	Emile Bertini, Galissi'
5.5-inch/50 M1929/34 [138]	42%	21,870yds	270/90	1/3/5	BL – Fantasque, DD
5.5-inch/40 M1923/27	40%	18,150yds	270/90	1/3/5	BL – Aigle DD etc.
5.1-inch/45 M1932/33 [130]	43%	22,820yds	213/71	1/2/4	DDs & Sec'd.
5.1-inch/40 M1924	41%	20,450yds	231/77	1/2/4	DD, Le Fortune
3.9-inch/45 M1931-33 [100]	46%	16,400yds	100/33	1/1/1	Various
3.5-inch/50 M1926 [90mm]	46%	16,885yds	120/40	0/1/1	AA various
3-inch M1922-27 [75mm]	44%	15,420yds	39/13	0/0/1	Various

GERMAN GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
15-inch/52 SKC/34 [38cm]	32%	38,880yds	5292/1764	12/23/30	Bismarck, Tirpitz
11-inch/54 SKC/34 [28cm]	33%	44,760yds	2181/727	7/16/23	Schamhorst, Gnei'u
11-inch/52 SKC/28	30%	39,890yds	1983/661	4/12/19	Lutzow, G.Spee, Sch'r
11-inch/40 SKL/40	28%	20,590yds	1590/530	3/11/16	S-H, Schlesien
8-inch/60 SKC/34 [203mm]	34%	36,680yds	810/270	4/11/18	Adm Hipper, P. Eugen
5.9-inch/60 SKC/25 [150mm]	42%	28,100yds	300/100	2/4/9	Koln, Leipzig
5.9-inch/55 SKC/28	42%	25,150yds	300/100	2/4/9	Sec'd for BB/Bcr
5.9-inch/48 KC/36	42%	25,700yds	264/88	2/4/9	DD from 1942
5.9-inch/45 SKL/45	33%	21,220yds	300/100	1/3/5	WWI, S-H, Kormorant
5.9-inch/45 KL/45	33%	17,390yds	300/100	1/3/5	S113 DD, SS, raiders
5-inch/45 SKC/34 [127mm]	45%	19,030yds	183/61	1/2/4	TB Luchs, Type XI SS
4.1-inch/65 SKC/33 [105mm]	50%	19,360yds	100/33	1/1/2	Standard AA
4.1-inch/45 SKC/32	50%	16,595yds	100/33	1/1/2	TB, F-boats, SS
3.4-inch/78 [88mm]	45%	19,470yds	60/20	0/1/1	Early war – Lützow
3.4-inch/45 SKC/30	45%	15,500yds	60/20	0/1/1	Corv., Subchas'rs, Flak

ITALIAN GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
15-inch/50 A1934 [381mm]	30%	46,216yds	5850/1950	13/23/31	Littorio cl.
12.6-inch/44 M1934/36 [320]	28%	31,280yds	3470/1157	12/18/25	Cesare & Duilio cl
10-inch/45 [254mm]	26%	27,300yds	1500/500	5/14/20	San Giorgio
8-inch/53 A1927-29 [203mm]	30%	33,400yds	828/276	4/9/15	Zara, Fiume, Pola
8-inch/50 A1924	30%	34,256yds	828/276	3/8/14	Trento, Trieste
7.5-inch/45 [190mm]	28%	24,000yds	600/200	1/2/4	San Giorgio
6-inch/55 1934-36 [152mm]	40%	28,150yds	330/110	3/5/9	Littorio, Garibaldi
6-inch/53 1926-29	35%	31,060yds	330/110	3/5/9	Giussano, Diaz
5.9-inch/45 (Ge. SKL/45)	33%	21,220yds	300/100	1/3/5	Bari
5.3-inch/45 1937-38 [135mm]	42%	21,430yds	216/72	1/3/5	Duilo, Doria
4.7-inch/50 1926-40 [120mm]	47%	21,430yds	156/52	1/2/4	DDs & Sec'd
4-inch/45 (various)	40%	16,400yds	93/31	1/1/1	QF versions
4-inch/35 1914-16 [102mm]	40%	12,800yds	93/31	1/1/1	TB, SM & Coastal
3.9-inch/47 [100mm]	45%	16,610yds	90/30	1/1/1	Cruisers & Littorio cl.
3.5-inch/50 [90mm]	45%	17,500yds	66/22	0/1/1	Duilio cl.
3-inch QF	42%	13,000yds	54/18	0/0/1	Various QF AA.

JAPANESE GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
18.1-inch/45 Type 94	30%	45,960yds	9660/3220	14/22/34	Yamato, Mushashi
16-inch/45 Type 3	32%	42,000yds	6750/2250	12/20/28	Nagato
14-inch/45 Type 41	28%	33,770yds	4455/1485	9/16/23	Kongo, Ise
8-inch/50 Mk II	33%	32,150yds	831/277	4/9/15	Kako, Tone
8-inch/50 Mk I	31%	24,700yds	726/242	3/8/14	1920s CVs & sec'd
8-inch/12 Short HE	30%	6,900yds	309/103	0/0/0	AA&ASW merchants
6.1-inch/60 Type 3	42%	29,960yds	369/123	3/7/12	Yamato, Mushashi
6-inch/50 Mk 41	40%	22,970yds	300/100	2/3/5	CL, Agano, old BB
5.5-inch/50 Type 3	40%	21,600yds	255/85	1/3/5	Yubari, Nagato
5.5-inch/40 QF	38%	17,500yds	255/85	1/3/5	SS
5-inch/50 Type 3	44%	20,100yds	150/50	1/2/4	BL, Std DD
5-inch/40 Type 88&89	40%	16,075yds	150/50	1/2/4	DP, AA ship & SS
4.7-inch/45 Type 10	45%	17,500yds	135/45	1/1/3	CA, Kako, Akagi
4.7-inch/45 Type 3&11	38%	17500yds	135/45	1/1/3	BL, older DD etc
4.7-inch/12 Short HE	36%	5,800yds	90/30	0/0/0	AA&ASW merchants
4-inch/65 Type 98	47%	21,300yds	90/30	1/1/1	Various
4-inch/50 Type 88	47%	17,700yds	90/30	1/1/1	SS
3-inch/60 Type 98	42%	14,870yds	39/13	0/0/1	Various from 1938
3-inch/40 Type 3&11	42%	11,800yds	39/13	0/0/1	Subchasers & pre1938

NORWEGIAN GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
8.26-inch/44 SKL [209.3mm]	21%	20,900yds	5919/313	4/11/18	Norge cl.
5.9-inch/46 SKL	33%	21,220yds	300/100	1/3/5	
4.7-inch/44 QF	40%	12,000yds	135/45	1/1/2	
3-inch various QF	42%	13,000yds	54/18	0/0/1	Typical AA

Note: many Norwegian naval guns were provided by Britain, so use equivalents.

SOVIET UNION GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
12-inch/52 M1910-14	24%	26,925yds	3114/1038	8/12/16	Gangut cl.
7.1-inch/57 [181mm]	26%	37,800yds	645/215	1/2/4	Kirov cl.
5.1-inch/55 [130mm]	38%	21,435yds	243/81	1/2/4	DD & Sec'd
4.7-inch/45&50 [120mm]	40%	15,800yds	135/45	1/2/4	Gangut sec'd
4-inch/60 [101.6mm]	42%	16,400yds	114/38	1/1/1	DD, SS, Escorts
4-inch/50-56 [100mm]	44%	24,500	100/33	1/1/1	various
3.35-inch/53&55 [85mm]	47%	16,750yds	63/21	0/1/1	standard gun
3-inch/30,41&55 [76.2mm]	42%	14,760	42/14	0/0/1	standard gun

UNITED STATES GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
16-inch/50 Mk VII	34%	42,345yds	8100/2700	13/22/30	Iowa cl.
16-inch/45 Mk VI	32%	36,900yds	8100/2700	12/20/26	N Carolina, Washing'n
16-inch/45 Mk I	32%	35,000yds	6720/2240	13/22/30	Maryland, Colorado
14-inch/50 Mk VII & XI	28%	36,300yds	4500/1500	10/19/26	NM, California
14-inch/45 Mk VIII & XII	28%	34,300yds	4500/1500	10/18/25	Texas, NY, Ariz
12-inch/50 Mk VII	26%	23,500yds	2610/870	9/13/18	Arkansas
12-inch/50 Mk VIII	33%	38,500yds	3420/1140	9/17/23	Alaska, Guam
8-inch/55 Mk 9 to 14	32%	31,860yds	780/260	4/8/14	Lex, most CAs
8-inch/55 Mk 12 & 15 (triple)	32%	30,050yds	1005/335	5/9/14	Baltimore cl. CAs
6-inch/47 Mk 16	40%	26,118yds	390/130	3/5/9	Brooklyn, CL
5-inch/51 BL	40%	15,850yds	150/50	1/2/4	Sec'd

5-inch/25 HA Mk 13	38%	14,500yds	162/54	1/1/2	Various pre1930s
5-inch/38 DP Mk 12	45%	18,200yds	165/55	1/2/4	WWII standard
4-inch/50 Mk 6, 7, 9 & 10	47%	15,920yds	100/33	1/1/1	Older&WWI vintage
3-inch/50 Mks 10-22	42%	14,600yds	39/13	0/0/1	Various
3-inch/23 Mks 9, 13 & 14	42%	10,100yds	39/13	0/0/1	Older submarines

YUGOSLAV GUN CHARACTERISTICS

Size, Calibre, Mk/Type	Gun Factor	Max. Range	ID / ED	Armour Penetration (LR/MR/CR inches)	Ship Classes
5.5-inch/56 Skoda	42%	23,400yds	264/88	2/4/8	DD Leader
4.7-inch/46 Skoda	47%	19,500yds	156/52	1/2/4	DDs
4-inch/40	40%	16,400yds	93/31	1/1/1	SM
3.3-inch Skoda AA	42%	12,360yds	66/22	0/0/1	AA

Naval Torpedo, Depth Charge, Sensors & Other Weapon Characteristics

Assorted data for each nation's most common Submarine & Anti-Submarine Weapons may be found in this Data Table. This includes anti-submarine weapons, bombs, depth charges and A/S torpedoes fired from surface vessels, aircraft and other submarines. This includes selected sensors used to detect, identify and obtain a fire solution against enemy submarines. A few decoys are also listed.

Allied Surface, Submarine & Anti-Submarine Weapons

British Mk VII Depth-Charge: 1939-45, Weight (oa) 420lb. 290lb explosive charge (870/290 damage points). Hydrostatic pistons set from 30 to 300ft deep. (Settings – safe/30/50/75/100/150/200/250/300ft).

Hedgehog Ahead Throwing DC Projector: introduced late 1942 (most effective 1944-45). Fwd thrower with 6x4 spigots launching 24 projectiles in a 40yd circular pattern – 200yds ahead. Projectile weight 65lb (oa). 35lb explosive charge (105/35 damage points). Sinking rate 22ft/sec. All projectile DCs sink until contact with target. Maximum effective depth 400ft.

Squid Ahead Throwing DC Projector: introduced late 1943 (most effective mid 1944-45). Fwd thrower with 3 barrels launching 3 projectiles in a triangular pattern (40yd sides) – up to 275yds ahead. Projectile weight 390lb (oa). 207lb explosive charge (621/207 damage points). Sinking rate 43ft/sec. All projectile DCs use depth setting provided by Type 147 ASDIC. Maximum depth 900ft. Normally a ship used two Squid units to launch a 6 projectile pattern, although some ships had only a single Squid.

British Mk VIII: standard 21-inch torpedo used throughout the war.

US Mk 24 'Fido': 19-inch torpedo with a passive acoustic homing capacity and a contact fuze. They weighed 680lb (oa) with a charge of 92lb (damage 300/100 pts). Range was 4000yds at 12kn. Aircraft delivery was at speed of 125kn and height of 250ft.

British Type 128 ASDIC: introduced 1938-42. Used by Destroyers, Escorts & Larger Surface Ships. Ship operating speeds up to 15kn (reinforced steel or retractable domes). Maximum speed 24kn (½ detection). Range up to 2,000yds. Min. 300yds. Single active beam producing an active cone (16 degrees) through the water. The active beam sweeps continuously or in 5 degree segments. Active beam gives a continuous 'buzz' or 'ping'. A stop button is used for interrogation of the echo. This is used to detect range and direction of the submarine. The detection angle is 90 degrees forward (45 degrees each side) of the sonar dome. Provided range & direction of submarine targets. Copied by USN. Standard Early War ASDIC.

British Type 129 ASDIC: introduced 1937-42. Used by Submarines. Provided range & direction of submarine targets.

British Type 123 ASDIC: introduced 1938-42. Used by A/S trawlers, and small patrol vessels. Provided range & direction of submarine targets.

US QC Sonar: 1937-42, four types for ships and submarines. Standard set for most of war. Max. ship operating speed 10kn. Steel domes introduced 1940-41.

US QGA Sonar: 1944-45, searchlight sonar system for destroyers. Recorder mode detection 1500yds & 3750yds. 15 & 30 kHz sets. Could be tilted down from 0 to 45-degrees. Housed in free-flooding steel dome in bow.

British Type 144Q and Type 147 combination ASDIC. 1943-45. British standard. Retractable sonar dome. Anti-submarine vessel is limited to operating speed 15kn and constant course. Maximum speed 24kn (½ detection). Combination of three active beams. Main beam (Type 144) producing an active cone (16 degrees) through the water. Detection angle 90 degrees forward. Maximum range was 2500yds with a minimum of 100yds (using Q). Type 144 beam sweeps continuously or in 5 degree segments, giving a continuous 'buzz' or 'ping'. A stop button is used for interrogation of the echo. This is used to detect range and direction of the submarine. The Q set produces a second wedge shape beam, extending up to 1200yds and arcing from surface down at 65 degrees. Q beam reduces the dead zone ahead of the A/S vessel to maintain contact with the target up to the minimum, 100yds. The Type 147 set produced a third fan shaped beam, extending up to 1000yds range with an arc of 60 degrees.

British Type 147 ASDIC: introduced late 1943. First ASDIC to provide submarine target depths.

MAD (Magnetic Anomaly Detection): Equipment that measures changes in the earth's magnetic signature to detect underwater metal objects, ie. submarines. MAD equipment towed behind A/S ships or contained in A/S aircraft.

HF/DF (Huff Duff), High Frequency Detection Device: A ship-borne device capable of detecting short high frequency radio signal from submarines. During 1942 huff-duff sets were introduced that included continuous tuning that scanned frequencies and sounded an automatic alarm when transmissions were detected. Operators would fine-tune the submarine's signal to determine its direction, wrt the escort with huff duff. Whenever possible two escorts would use huff duff and their directional data triangulated to obtain the submarine's position often at considerable distances from the escorts.

AN/CRT-4 Sonobuoy: Introduced Feb 1943. Earlier 1942 versions not as effective. Air-launched directional passive sonar buoys. Each sonobuoy was 2ft diameter, weight 14lb. Each deployed sonobuoy rotated 360 degrees every 12 to 20 minutes, and detected submarines located at underwater ranges between 300 & 2,500yds. Submarine speed and direction could not be measured. They were then capable of transmitting contact information by radio to the aircraft up to 10nm away.

German Submarine & Anti-Submarine Weapons

T1 – G7a Early War Torpedo: 21-inch. Wet-heater compressed air torpedo. Wt 3,369lb oa. Charge 661lb. Surface. Range (1939): 8,200 @ 40kn, & 13,700 @ 30kn. 1939-40 poor depth keeping and magnetic firing pistol.

T2 – G7e Standard Early War torpedo: 21-inch. Electric torpedo. Wt 3,534lb oa. Charge 661lb. Submarines & E-boats. Range: 5,470 @ 30kn. Relatively quiet & trackless. Slow and short range.

T5 - Zaunkönig I Passive acoustic homing torpedo: 21-inch. Wt 3,300lb oa. Charge 661lb. Submarine. Range: 6,230yds @ 24-25kn. Min. 330yd. Designed to attack convoy escorts at 10-18kn. First used Sept 1943. (known by British as GNAT torpedo). Allied 'Foxer' decoy counter-measure.

T11 - Zaunkönig II Passive acoustic homing torpedo: 21-inch. Wt 3,300lb oa. Charge 661lb. Submarine. Range: 6,230yds @ 24-25kn. Min. 330-2080yd. Designed to attack convoy escorts at 8-19kn. Ready Apr 1945. Submarines can fire at depths up to 165ft using acoustic data. Allied 'Foxer' decoy counter-measure not effective.

Geiger – Active Homing Attachment. Up to 250yd range to detect target. Not ready before end of war.

FAT (Federapparat Torpedo) Pattern Running Device: Fitted to G7a, G7e & other torpedoes. Straight run followed by 180 degree turn and repeated dog-legs (870-1640yds). Operational Dec 1942.

LUT (Large Unabhängiger Torpedo) Pattern Running Device: Only used from mid-1944. Complex variations on running. Difficult to calculate firing solutions.

F5b – Airborne wet-heater compressed air torpedo: 17.7-inch. Wt 1,598-1,790lb oa. Charge 397/551lb. Range: 2,200yds @ 40kn. 6,560yds @ 24kn. Aircraft dropping speed 120kn at 100ft height. In service from Dec 1941.

LT 350 – Airborne electric torpedo: 19.7-inch, (50cm). Italian supplied pattern running. Wt 772lb oa. Charge 265lb. Range: 16,400yds @ 13.5kn falling to 3.9kn due to rapid battery discharge.

Henschel Hs.293 - Radio Guided Anti-Ship Glide Bomb: Wingspan 10ft 7inches. Wt 1700lb oa. Charge 683lb. Fuelled by hydrogen peroxide. Parent aircraft Do.217 or He.177 each could carry two Hs293, radio controlled. Glide bomb range 4,400-22,000yds after launch @ speeds 300-400kn. First fired operationally August 1943.

GHG (Gruppenhorchgerät) Passive Sonar: Group listening device. Detects target ship noise and direction. Range for detection – individual vessels 10nm, convoys 50nm. Search area 2 x140 degrees. 24 LF sensors each side. In 1943 a new device ‘Balkon’ was installed to overcome interference & allow passive listening at periscope depth.

Schallanlage (S-Anlage) Active Sonar: An active sensor in the bow of large surface vessels able to detect a bearing. Range up to 15,000yds for large ships. Fitted to *Bismarck*, *Tirpitz*, *Scharnhorst*, *Gneisenau*, & Heavy Cruisers. Often used in conjunction with the passive GHG sonars.

Sondergerat Fur Aktive Schallortung (S-Gerat): The S-Gerat (Special Apparatus for Active Sound Location) was an active sonar for U-boats & smaller warships. Range up to 4,000yds. Often used in conjunction with passive GHG sonars – which were preferred for submarines.

Sonderapparat (SU-Apparat) – Nibelung: An active/passive sensor installed on the Type XXI, which coupled with the acoustic torpedo, enabled a U-boat to launch its torpedoes at depths down to 50 meters. The SU-Apparat (Special Apparatus for U-boats) could determine the target's speed, range and direction. A firing plan for an acoustic torpedo would be calculated. Range up to 4,000yds.

Schallanlage (S-Anlage) Active Sonar: An active sensor in the bow of large surface vessels able to detect a bearing. Range up to 15,000yds. Fitted to *Bismarck*, *Tirpitz*, *Scharnhorst*, *Gneisenau*, & Heavy Cruisers.

Pillenwerfer – Submarine Bubble Target: a bubble decoy used by U-boats to disturb the active sonar of ASDIC sets. Chemical pills are ejected and when activated by seawater they produced a submarine size bubble to deceive ASDIC operators. One form consisted of 6 to 12 large pills which reacted for 6 to 30 minutes. Other forms emitted oil and bubbles together. First used April 1942.

Seetakt (FuMO 26/29) – Surface ship fire control radar. Used 1939 on *Graf Spee*, *Königsberg*, & torpedo boats. Maximum range was up to 13.7nm (27,400yds). Trialled on some U-boats during 1942. Maximum range for submarines was 4nm (8,000yds)

Submarine radar (FuMO 30) - Submarine search radar. Installed on most U-boats from early 1943. Maximum range was up to 4.3nm (8,600yds).

Howentwiel (FuMO 61) - Submarine search radar. Used 1939 on *Graf Spee*, *Königsberg*, & torpedo boats. Maximum range was up to 5.4nm (10,800yds).

Metox 600A (FuMB 1) – U-boat radar detection equipment tuned to pick up 1.5m radar (ASV I/II). Used Aug 1942. Detected aircraft up to 8nm. Signal lost at 1nm due to sea clutter. Emitted weak signal. Metox signals were falsely believed to be the cause for air attacks using the undetected ASV III (10cm) radar.

Naxos I (FuG 150) – U-boat radar detection equipment. In response to centimetric radar (ASV III first used Mar 1943). Used from Sep 1943. Common by November 1943. Detected aircraft up to 8nm. Signal lost at 1nm.

Japanese Submarine & Anti-Submarine Weapons

Type 93 (Mod 3) Passive Active Sonar (ASDIC). 1940-45. Initially only about 50 available on DD & escorts in Dec 1941. Later fitted to destroyers, escorts, selected warships and submarines. The sonar dome is fixed or retractable. Ship operating speed 12kn and constant course, to minimise interference. Maximum speed 20kn (½ detection). The detection angle is 90 degrees (45 degrees either side of centre) forward of the sonar dome. Single active beam producing an active cone (16 degrees) through the water. The active beam sweeps continuously or in 5 degree segments. Active beam gives a continuous 'buzz' or 'ping'. A stop button is used for interrogation of the echo. This is used to detect range and direction of the submarine. Maximum range for Type 93 (Mod 3) is 1200yds. The active beam loses contact at 300yds ahead. No indication of submarine depths possible for Japanese sonars.

Jikitanchiki (Japanese MAD): A magnetic anomaly detection device was either towed behind A/S escorts or carried by specially modified A/S aircraft. The Japanese air forces attached MAD devices to ASW versions of the Kate, Jake, Nell & Lorna (Q1W) aircraft.

Search Radar Type 2 (1942) Mk 2 – Installed from August 1943. Range 38 to 54nm. Submarine fire-assisting radar.

Search Radar Type 3 (1943) Mk 1 – Installed from February 1944. Range 27 to 54nm.

Airborne Search Radar Type 3 (1943) Mk 6 – Installed from August 1942. Range 38nm for aircraft, & 54nm for group.

FURTHER READING

The following sources are recommended for further reading. This listing is by no means exhaustive. The naval wargamer should be ready to both broaden their outlook and to delve deeper into those areas that most interest them. It is the experiences of the journey that counts not the destination, and their will always be another sea to cross.

Wargaming, Naval Rules & Board Games:

Mal Wright's WWII Naval Rules (Adelaide, 1978).
Flat Top (1977).
Skytrex (1981).
SeeKrieg4 (1981).
ALNAVCO Seapower II (1970).
Fred T. Jane's Naval Wargame Rules (1906) & (1912).
Admiralty, Instructions for Tactical and Strategic Exercises, 1921.
Fletcher Pratt's Naval War Games (1940).
Naval War Games by Donald F. Featherstone, 1965/1975.
U.S. Navy Fundamentals of Wargaming by Francis J. McHugh, 2013.

WWII Naval Histories:

Battle for Leyte Gulf by Van Woodward.
Merchant Shipping and the Demands of War by Behrans.
Narvik by Donald MacIntyre.
The Battle of the Atlantic by Donald MacIntyre.
The Battle of Matapan by S. W. C. Pack.
The British Navies in the Second World War by Sir W. M. James.
The Little Ships by G. Holman.
US Naval Operations, Second World War (15 vols.) by Morison.
War at Sea (3 vols.) by Roskill.
The Loss of Scharnhorst, *Sea Battles up Close*, Ian Allen series.
The Loss of Bismarck.
Night Action off Cape Matapan.
The Battle of the River Plate.
The Battle for Crete.
The Attack on Taranto.
The Loss of Prince of Wales and Repulse.
The Attacks on the Tirpitz.
Narvik, Battles in the Fjords.
Operation Neptune.
The Battle of the Coral Sea.
The Battles of the Malta Striking Forces.
The Battle of the Philippine Sea.
The Escape of Scharnhorst and Gneisenau.
The Battle of Sirte.

Navies:

World's Fighting Ships: Jane's Fighting Ships (1939 & 1944/45), Fred T. Jane.
British Battleships of World War Two by Raven & Roberts (1976).
British Cruisers of World War Two by Raven & Roberts (1980).
The British Battleship 1906-1946 by Norman Friedman.
British Cruisers: Two World Wars and After by Norman Friedman.
British Destroyers: From Earliest Days to the Second World War by Norman Friedman.
British Destroyers and Frigates: The Second World War and After by Norman Friedman.
British Aircraft Carriers: Design, Development and Service Histories by David Hobbs.
The German Navy of World War Two by Jak Showell.
Warships of the Imperial Japanese Navy 1869-1945 by Jentschura.
Nikon Kaigun website.

Soviet Warships of the Second World War by Jurg Meister.
US Amphibious Ships and Craft: An Illustrated Design History by Norman Friedman.
US Aircraft Carriers: An Illustrated Design History by Norman Friedman.
US Battleships: An Illustrated Design History by Norman Friedman.
US Cruisers: An Illustrated Design History by Friedman, Baker & Allen.
US Destroyers: An Illustrated Design History by Norman Friedman.
US Small Combatants: An Illustrated Design History by Norman Friedman.
US Naval Operations, Second World War, Supplement (Vol 15) by Morison.
US Warships of World War Two by Silverstone.

Naval Technologies:

Naval Weapons of World War II by John Campbell (1985).
Naval Firepower: Battleship Guns and Gunnery in the Dreadnought Era by Norman Friedman.
Naval Radar by Norman Friedman (1981).
Submarines of World War II by Erminio Bagnasco (1977).

Biographies:

A Sailor's Odyssey by Admiral Cunningham.

Doctrine:

Admiralty Fighting Instructions, (1939).
Admiralty Naval War Manual, BR1806 (1947).

APPENDIX: SHIP CALCULATIONS

The following guidelines provide information on how to calculate ship characteristics for various types of ships. These may be used to calculate values for any actual ship that one desires to use within these NAVSIM rules.

To Calculate Ship Damage Points

For large armoured warships (BB, CA, CL & the like):

$$\begin{aligned} \text{Damage Points} = & \text{Standard Vessel Displacement (tons)} \\ & + 10 \times \text{Vessel Length in feet (OA)} + 10 \times \text{Vessel Width in feet (maximum)} \\ & + 10 \times [\text{A1 (inches)}]^2 + 10 \times [\text{A2 (inches)}]^2 + 10 \times [\text{A3 (inches)}]^2 \end{aligned}$$

For aircraft carriers (CV, CVL, CVE & AVs):

Damage Points are 2/3 that calculated as for large armoured warships.

$$\text{Damage Points} = 0.66 \times \text{calculated Damage Points (above)}$$

For naval auxiliaries and other large commercial ships:

$$\text{Damage Points} = 0.66 \times \text{Standard Displacement (tons)}$$

For small vessels (<3,000 tons):

$$\text{Damage Points} = 1.5 \times \text{Vessel's Standard Displacement (tons)}$$

For submarines:

$$\text{Damage Points} = 1.5 \times \text{Submarine's Submerged Displacement (tons)}$$

For merchant vessels (over 3,000 tons):

$$\text{Damage Points} = 1 \times \text{Gross Registered Tonnage (grt)}$$

As there is some overlap when using the above methods, some judgement needs to be used. For instance, smaller CLs (< 3000t) are treated the same as larger CLs making them much stronger than some larger destroyers. This is all a matter of judgement.

To Calculate Ship Target Factor (STF)

$$\text{STF} = \frac{\text{Overall Length of Vessel (in feet)}}{X}$$

where X = 20 for battleships, cruisers and larger warships
or X = 22.5 for destroyers, escorts, submarines and small warships
or X = 18 for aircraft carriers, auxiliaries and merchant vessels

Warship Armour Ratings

- A1 - Belt
- A2 - Deck (for carriers flight deck & hangar deck)
- A3 - Main Battery
- A4 - Secondary Battery
- A5 - Vitals, Conning Tower, etc.

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